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1. FRONT-PAGE NEWS Page



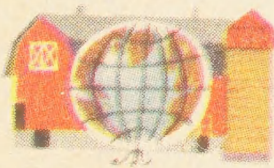
Harness atom for farm work	Cropmeter is revolutionary new
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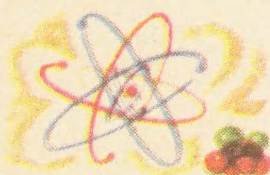
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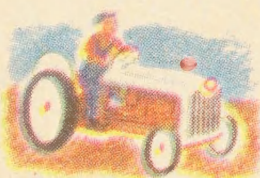
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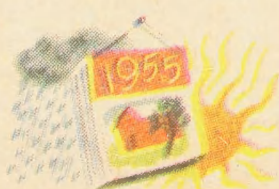
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I SECTION

FRONT-PAGE NEWS

ON a carefully guarded Long Island farm, man is using atomic rays to produce new crops, new vegetables, new fruits. . . . Growth-regulating chemicals will delay ripening crops for a better market, or speed up harvest to beat the frost. . . . Chemical killers will attack weeds and leave your crop unharmed. . . .

How petty and insignificant are most stories that make "front page"—compared with the vital discoveries of college labs, industrial researchers, and top farmers. For these new seeds, new breeds, improved techniques, and new machines meet the basic needs of man—food, shelter, and clothing.

The livestock pace is quickening, too. Our hogs have more ham and less lard. . . . Pigs can be weaned in a week. . . .

Hormones make cattle put on more meat on less feed. . . .

Milk can be kept fresh for a week, a month, a year. . . .

Chickens have double breasts, and no hard-to-pluck feathers on their wing tips.

Motors-not-muscles makes possible the standard of living that makes the good farmer the envy of city dwellers. One man can farm 300 acres, feed 1,000 hogs, keep 5,000 layers. Machines lift hay, scoop manure, feed cows, throw down silage, measure grain, electrocute weeds, and automatically warn of heat in the haymow or burglars in the hen house.

In the garden, you have insecticides that help plants bite back at their insect enemies . . . A revolution in the home, too, makes a king's palace as old-fashioned as the spinning wheel . . . Glass curtains, synthetic fibers, home freezers, air conditioning, electronic cooking—all are here.

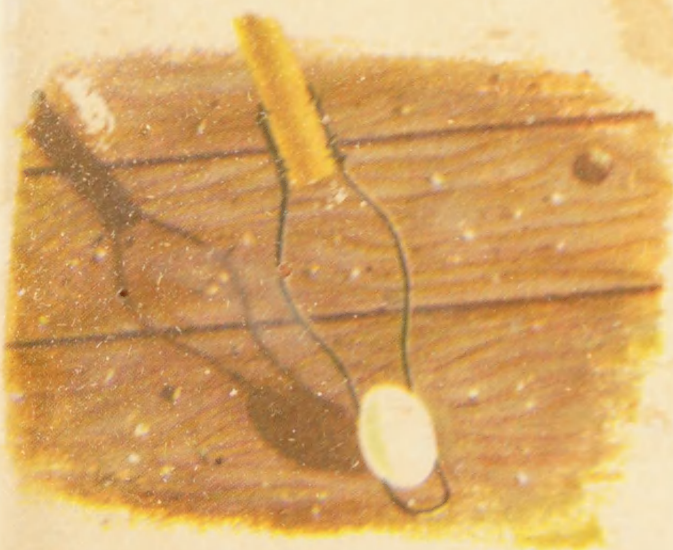
We need more than a "front page," a section, or a book to tell what's new in agriculture and country living. But here are the highlights. And we'll guarantee there'll be just as many new things for our '56 ALMANAC next year.

CATTLEMAN Conservation Dept. has hired psychologists to teach fish to be haughty to catch. The plan is to teach hatchery-raised trout to look for food in the bottom of the stream, and avoid those things resembling flies which occasionally alight on the surface—but may be attached to a string with a minnow on the other end.

Now, who's going to teach us fishermen, so we can keep even in this battle of wits?

WEEDS ARE GREEDY

WEEDS in your field and garden like to eat and drink as much as you, crops—and maybe more. One pig-weed plant in a hill of corn may reduce yields by 30%. The average rag-weed plant takes three times as much water as corn. A common mustard plant can draw twice as much nitrogen and phosphorus and four times as much water as one thriving oat plant.



NO-STOOP EGG SNATCHER

WANT an easy way to pick up floor eggs or those laid under the roosts? Put a wire on the end of a stick with a loop big enough to slip over the egg and an eye small enough to hold it. P. T. Meyers, Hayward, Calif., says it saves \$1 worth of eggs every day with his gadget.



A NEW KIND OF LADDER

THIS tree-climber built with magnesium tubing is just right for high work of almost any kind. It was developed by Washington State Fruit Industries Research Foundation primarily for orchard work. It increases picking speed 25% because it weighs only 30 lb. and is easy to shift around. You put your feet through the straps and walk right up the pole. Sort of makes a ladder look old-fashioned, doesn't it?

FOIL COOL NIGHT

A FRUIT-SET chemical, 7K-12, increased yields of tomatoes, lima beans, and peppers up to 100%. Sprayed on the early blossoms, it makes them set fruit instead of dropping off when nights get cool.

HARNESS ATOM



ATOMIC ENERGY is now being harnessed to serve the farmer—to give him new plants, to help him battle pests, and to show him how to use fertilizers more effectively.

Radioactive tracers told farmers they were putting on four times as much phosphorus as plants were using. For example, tobacco farmers were broadcasting superphosphate on top of the ground. But the tracers showed practically no phosphorus was being taken up by the tobacco plant.

The same tell-tale tracers showed the importance of fertilizer placement. It took cotton roots 15 days to reach

K ON FARM

a band of phosphorus fertilizer 3 in. from the seed—60 days to reach out to a fertilizer band 9 in. from the seed.

Corn drew from a 3-in. fertilizer band only 15 days after planting. These tracers also showed corn plants get their phosphorus from commercial fertilizer in the first stages of growth but later draw mostly from the soil. So—corn “starter” should be high in phosphorus.

Scientists have made male flies sterile by irradiating them with radioactive cobalt. When released, the flies mated with female flies in the wild, but the eggs didn't hatch, and there were no new flies.

At the Brookhaven, Long Island, Atomic Farm, thousands of plants are being bombarded with atomic rays in hopes of causing useful “sports”—new varieties of fruits and vegetables which may look better, taste better, and grow better (page 57).

Sweden for 20 years has been bombarding plants with X-rays to cause plant changes. That's the way she developed a stiff-strawed barley.

NEW CORN COMING UP

CORN BREEDERS, not satisfied with the 25% increase in yield that hybrid corn has given, are now building new special-purpose hybrids.

Higher Protein Corn: Varieties with 50 to 75% more protein are now on test. In a Univ. of Illinois feeding trial, corn and corn silage with 16% protein were compared to corn with 8% protein, which is about average. Result was a \$15 feed saving per steer by use of the high-protein feed.

Armored Corn: Starlings and blackbirds in many areas feast on corn in the fields, taking up to a quarter of the kernels. That's why the Ohio Experiment Station is developing new hybrids with long, thick husks. These husks give corn a protective overcoat

until kernels are too hard to attract birds.

Corn for Thick Planting: New hybrids developed in Illinois and Pennsylvania do well when crowded into thick stands. One Illinois type will yield solid 6½-oz. ears in a 30,000-stalk stand. When planted at usual rates, these hybrids do about as well as other strains. On land with 18,000 to 30,000 stalks, they'll outdo others by 30 bu. per acre.

Borer-Resistant Corn: We're learning to live with the corn borer. Best way is with strains that are either resistant to borer attack or tolerant to borers. Several such varieties will produce big yields in spite of attacks by borers.

SANTA GERTRUDIS: NEW "AMERICAN" BEEF BREED

CATTLEMEN as far distant as Australia are clamoring for stock of America's first home-developed cattle breed, the Santa Gertrudis.

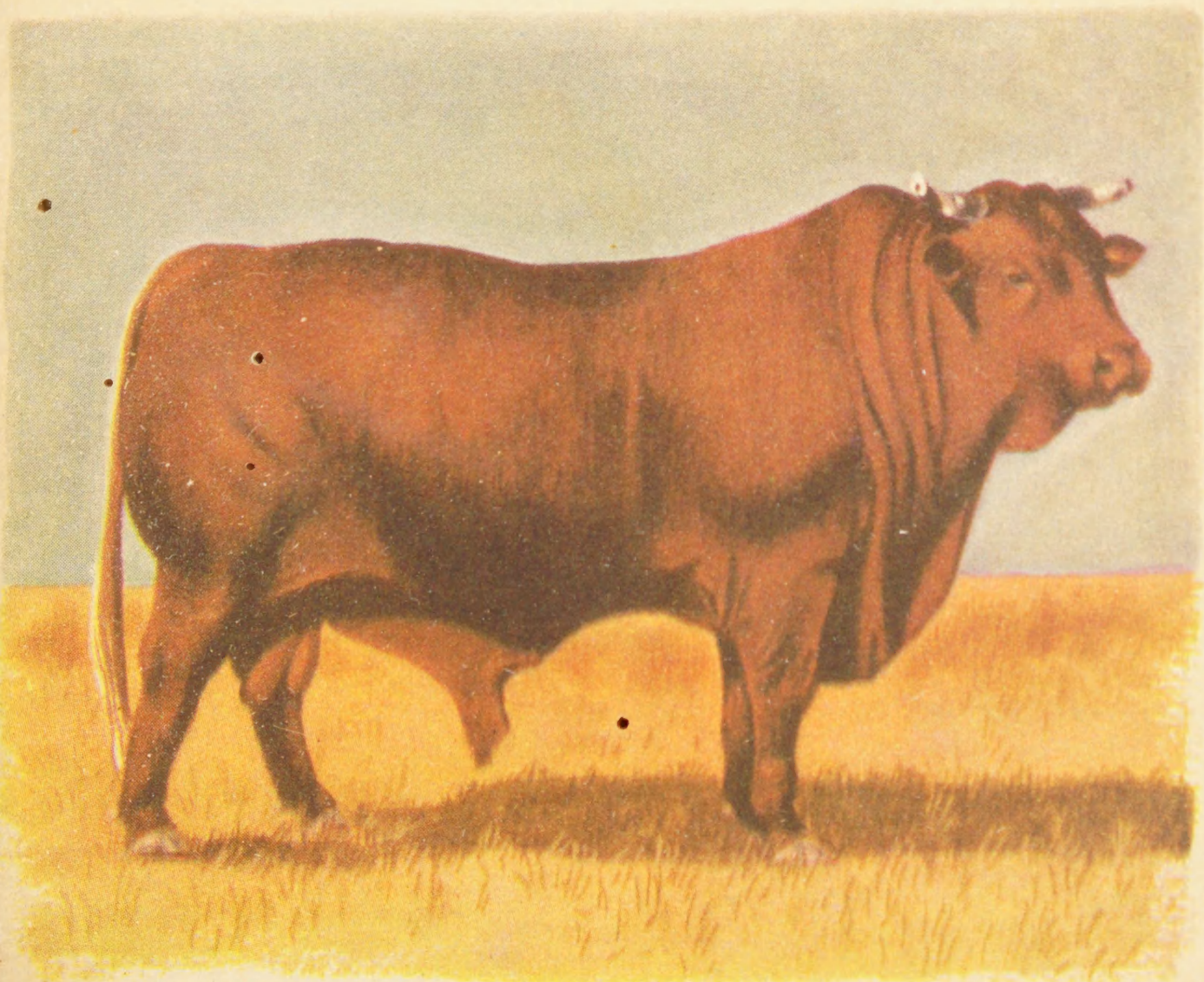
Tough—that's the best way to describe these big red cattle developed by the King Ranch in Texas. They like a blazing hot sun, pay no attention to pestering insects, and thrive on sparse range. That's why they've been welcomed Down Under and in the Philippines, Hawaii, Central America, South America, and Portuguese West Africa.

The blood mixture of three-eighths Brahman and five-eighths Shorthorn practically eliminates the Brahman hump and seems to give maximum size, hardiness, and ability to fatten. It also brings a high dressing percentage and resistance to heat and insects—plus these other advantages:

1. *Rate of growth:* A Santa Gertrudis calf will outweigh the breeds by 100 to 200 lb. at 8 months. Cows weigh between 1,100 and 1,200; bulls run around a ton at maturity.

2. *Dressing percentage:* Steers in one test had a dressing percentage of 72%. Long-fed animals weighed 2,300 lb. Four-year-old steers average 1,400 lb. when finished on the range for market.

3. *Foraging ability:* These cattle are good rustlers. They can walk long distances for their feed and will graze through the heat of the day. Put them in a colder climate and they still do well. King Ranch has a flourishing herd in Kentucky and regularly finishes steers on a big Pennsylvania ranch. Rich bluegrass and clover pasture put 350 lb. on them in about 6 months.





APPLE PICKIN' ARMS

PICKING tubes are like an extra pair of arms. The picker drops the fruit into plastic or canvas tubes leading to a bag. Rubber baffles inside the tube prevent bruising as fruit falls.

W. E. Druse, Yakima, Wash., says he can pick 30% more fruit in a day with these extra arms.

WOW! A LOOK INTO THE FUTURE

THE LOGGING industry 50 years from now will be hiring Superman and Buck Rogers instead of ordinary lumberjacks. The president of Forest Products Research Society makes these predictions:

Giant helicopters will fly logs out of inaccessible canyons. Lumberjacks will carry a hypodermic needle to inject radioactive material into trees—to stain the wood the desired color and season it at the same time.

Logs will be sawed with a powerful ray that leaves no sawdust and planes lumber glass-smooth as it saws. Tree growth will be speeded up to maturity in one-third the time. We'll grow three times as much timber as now. Boards will be compressed to form almost indestructible table surfaces. Forests will be chemically fire-proofed—forest fires will be seen only in movies in 2005.

PICK CORN WITH COMBINE

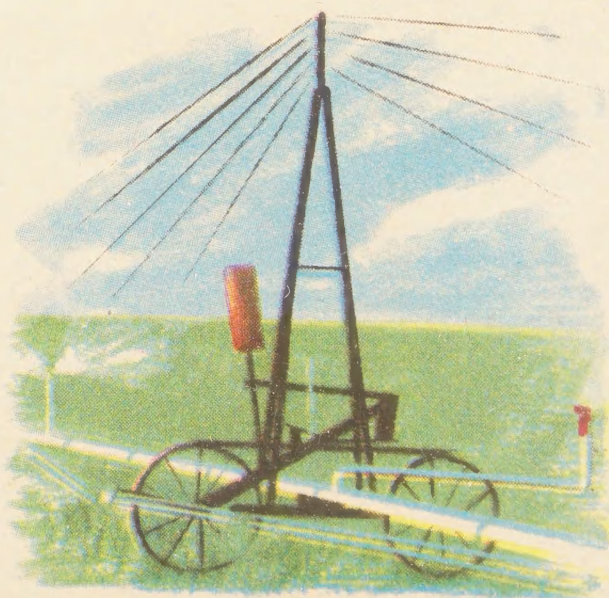
ARE GRAIN combines the corn harvesters of the future? Bill Leshner, Miami Co., Ohio, thinks they are. His self-propelled combine picked and shelled corn from 300 acres with only \$50 worth of changes. It handled 1,200 bu. per day, and the corn was as clean as any delivered to the local elevator. Using the combine for corn triples the use he gets out of this expensive machine.

Leshner removed the 12-ft. combine head and installed gathering points from a two-row picker. He also changed some gear ratios to run the cylinder at half speed. A hopper was installed to funnel corn from picker elevator to cylinder.

AUTOMATIC IRRIGATOR IS SELF-PROPELLED

HERE IS the irrigator's dream come true—a self-propelled sprinkler which eliminates all labor. The water pressure drives the wheels, strung out along the line. As long as the pump is turned on, the lateral slowly revolves in a 40-acre field like a giant sweep hand on a clock, sprinkling as it goes.

Frank L. Zybach, wheat farmer near Columbus, Nebr., invented it. A 630-ft. line in a 40-acre field can be set to travel 100 ft. an hour—a complete revolution in 38 to 40 hours.





SELF-FEEDING SILO THAT WORKS

THIS self-feeding silo lets the cattle help themselves. And all who've climbed drafty 40-ft. silos on winter mornings to hack out frozen silage will give warm thanks to ag engineers who've designed it.

Key to its construction is seven pie-shaped partitions of poured concrete at the base. They spread silage so it

does not flow too fast. There's no danger of cattle eating into the silo—and then getting buried under tons of silage suddenly dropped. Steel doors are closed when silo is filled.

It has given most satisfactory use on an experimental farm in Marietta, Ohio. You can make self-feeder out of most upright silos.

Stay in Bed!

TV Will Check Your Livestock

YOU CAN now check your sows at midnight or see what the commotion is in the hen house—without rolling out of your warm bed. You do it with closed circuit television.

All you do is snap on the receiving set in your home—and what your snooping camera sees, you see.

Only one thing, men: In the daytime your wife can spy on you while peeling potatoes in the kitchen. So don't loaf in the barn—at least not in camera range.



Are You Safe?

Your chances of getting injured are 50-50 if you're the careless operator of a mechanical corn picker—1 in 25 if you're an average operator. But if you're a safe operator, there's only one chance in a million you'll be hurt, says the National Safety Council.



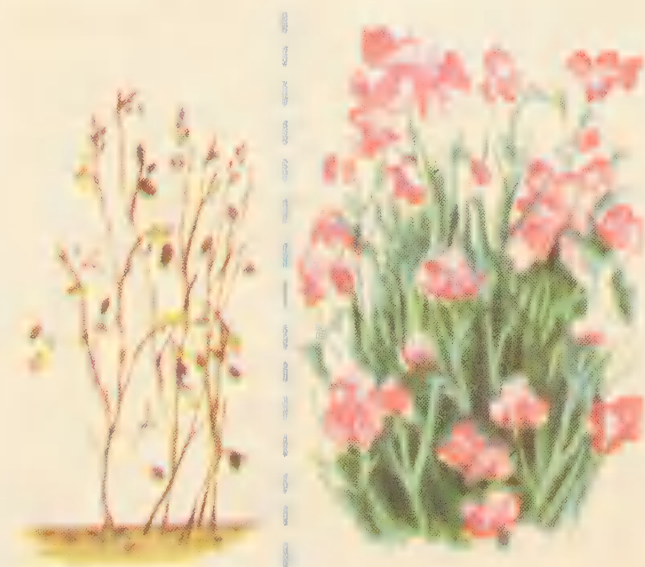
NEW DWARF TREES GOOD FOR SHOW—AND APPLES

THE NEW dwarf apple trees can be for show as well as for fruit. You can stick a couple on the smallest lot, as our picture shows. Or in a 20- by 20-ft. plot you can plant 8 dwarf apple

trees and a peach, a pear, a plum, and a cherry. And you'll have fruit from this Tom Thumb orchard in 2 years—bigger fruit than from normal-sized trees.

THESE SWEET PEAS WILL BEAT THE HEAT

SWEET PEAS that resist the heat and bloom like mad up to the dog days of August have been developed by plant breeders to make your garden a riot of color. These Burpee pictures taken in mid-July show how ordinary varieties wilt—and how the new heat-resistant ones bloom profusely.



FOUR TIPS FOR EARLY TOMATOES

FROM MICHIGAN STATE horticulturists come these four tips for getting early tomatoes:

1. Grow plants in 4- by 4-in. bands or pots. Result will be "stocky, well-formed plants, needed to support early crop of fruit.

2. To get more early tomatoes from a given space, plant two to a pot, then transplant them two to a hill. This doubles potential number of early flower clusters.

3. Waxed paper protectors which later can be punctured give plant protection against wind and weather, and result in tomatoes 2 weeks earlier.

4. Night temperature of 70° and more the first 3 weeks, plus fluorescent light from 6 to 11 p.m., gives much more vigorous tomato plants. After this period, let night temperatures drop to 60°.

COLOR CAN PEP YOU UP—OR PUT YOU TO SLEEP

LADIES, be careful of the colors you use in your home. Recent studies prove the wrong color can make housework seem like slaving drudgery . . . can turn your husband into a peevish tyrant . . . and give your guests violent headaches.

But the right color, in the right spot, in the right doses will make you whistle while you work, transform a grumpy husband into a solicitous sweetheart, and cause neighbors to sigh with envy at your wonderful home.

Psychologists agree that color has a strong impact on human emotion and health. It may be responsible for a child's illness, a wife's nervousness, or a husband's indifference.

Brilliant red stimulates and excites. It's fine in a receiving hall where you welcome your guests, in a room where a football coach urges his players to go out and tear the other team apart, or in a rumpus room where you expect some activity.

But if you tend to be flighty and your husband nervous, too much red in the living room will drive you both batty. And don't blame Junior for blood-curdling yells and broken windows if his playroom is overly red.



Light blue or blue-green puts you in a relaxing, restful mood. It's fine for the room where a keyed-up husband can unwind and read and you can knit . . . or for the master bedroom.



Dark-blue rooms will cool off family enthusiasm, silence conversations, and cause always-cold persons to push up the thermostat. And if your husband by nature is a pessimist, this will drive him to drink.



Green is a neutral color. It's more cheerful than blue and more restful than yellow. It's excellent for a working environment.



Yellow is a cheerful color. The right amount in the kitchen will make you sing at your work, and make you feel as if you're engaged in the world's most interesting occupation.

THESE POISON PLANTS CAN KILL

THERE ARE at least 60 plants—some downright pretty and most quite innocent-looking—that are poison to your livestock. Dr. R. P. Link, Univ. of Illinois College of Veterinary Medicine, estimates there are 40 such •poisonous plants in Illinois alone.

A few plants that cause trouble in the spring when good forage is scarce are: Young cocklebur seedlings, water and poison hemlock, Jack-in-the-pulpit, pokeberry, larkspur, buttercup, Dutchman's breeches, oak leaves, and the sprouts, leaves, pods, and seeds of Ohio buckeye and black locust.

Poisoned animals are usually list-

less, lose weight, have a hard time breathing, and may have convulsions.

Some other villains of the plant world are:

White Snake Root
Horsetail
Prairie Milkweed
Black Nightshade

Hemp
Bittersweet
Jimson Weed
Ground Ivy

• Halogeton, a poisonous plant, has invaded several million acres of rangeland in Nevada, Idaho, Utah, Wyoming, Montana, California, and Colorado. But cattle will eat it only when forced to—only when they can't find other feed.



White Snake Root



Prairie Milkweed



Jimson Weed



Cocklebur

BROILER OR LAYER?—HOOSIER WHITE IS BOTH



A NEW chicken breed that lays well and makes a good meat bird has been developed by Purdue Univ. researchers. "The Hoosier White" was developed by crossing five strains of Barred Rocks, one of Dark Cornish, and two of White Rocks.

Most broiler strains are poor layers, so that farm flock owners haven't

wanted to keep them to supply hatcheries with eggs. But the Hoosier Whites laid at a 65% rate from Aug. 1 to Jan. 1 last year. While Leghorns did better (80%), the new breed performed very well for a meat-type bird. It promises to fill the bill as a broiler—and for the small farm meat-and-egg flock.

NO PINFEATHER "INK" ON THESE NEW WHITE TURKEYS



YOU CAN pick your market with a pair of new fast-gaining white turkey breeds. The Broadwhite and the Empire can be marketed as 10-lb. broilers, or you can carry them on to full 20-lb. maturity. Either way, they dress out a clean, white carcass without

pin feather "ink." The Empire Whites have hit 9 lb. in just 12 weeks. They ate only 1½ lb. of feed per pound of gain during the first 4 weeks; 2 lb. during the next 6 weeks; and 2½ lb. of feed per pound of meat after 12 weeks.

LET SCYTHE GATHER RUST

YOU CAN hang up your scythe for good. Chemicals can do a better job on fence-row brush and weeds, and they'll do it with a lot less back work.

Use CMU, a soil sterilant, if you want to *kill everything along the fencerow*. Alfred Jesse, Denton Co., Tex., mixed 1 lb. of CMU in 3 gal. of water, then sprayed 230 ft. of fencerow. Three weeks later the ground was bare, while the unsprayed part had a bumper crop of Johnson grass and sunflowers.

If you want something with a little less strength, try 2,4-D or 2,4,5-T. You can buy them in a combination called "brush killer." Use less than 80 lb. pressure and dilute "brush killer" to 1 gal. in 80 to 100 gal. of water. Watch where you spray, for drift may kill soybeans, alfalfa, clover, garden crops—and your neighbor's friendship.

30-LB. RADISH

THE JAPANESE grow the biggest radishes in the world—some are 2 to 3 ft. long and weigh as much as 30 lb.

The "secret" of radish growth will be revealed at an international heredity conference in 1956, says Prof. Ichizo Mishiyama, who's now probing the secrets of the radish.

802 lb. of Beef per Acre

"Carrying pasture" to beef cattle made each acre of meadow produce 802 lb. of beef per acre, says Bernard Kozik, Johnson Co., Iowa. He fed 5 lb. of ground ear corn and 1 lb. of 11% protein molasses per head per day—and all the green forage they could eat. He credits the green forage with $\frac{2}{3}$ of the gain.

MAKE YOUR PASTURE WORK DOUBLE SHIFT



MISSISSIPPI researchers make pasture work a double shift. All summer long permanent grasses egged on with fertilizer produce plenty of forage. Then in the fall a winter grazing crop is seeded in rows directly in the weary

sod. A special machine drills in small grain or fescue and also fertilizes it. This provides lush green forage through fall and winter; and in the spring, the permanent pasture is back on duty again.



WILD HOGS TO CHOICE BACON IN 7½ YEARS

A WILD HOG can be transformed into a top meat producer in 7½ years. This is a dramatic example of how breeding pays off—and of how livestock can be improved.

Prof. Hjalmar Clausen, world-famous Danish hog-breeding expert, took a wild hog from the zoo, bred her to a top Landrace boar. Her gilts were bred to another Landrace boar, and so on. In five generations—only 7½ years—the wild hog was tamed down and bred up to produce top-quality pork.

Intestines were lengthened by 25 ft.;

body length increased from 83.7 to 96.5 centimeters; and number of ribs increased from 14.4 to 16.3. Most important: daily weight gain increased from 286 to 695 grams; and feed consumption per pound of gain was reduced from 579 to 312 lb.

That's why Denmark figures her years of intensive breeding research with Landrace boars are like money in the bank. Denmark now refuses to let any Landrace breeding stock be taken outside the country. But Danish research shows what can be done to upgrade the world's livestock.

INVISIBLE DROUTH KILLS CROPS

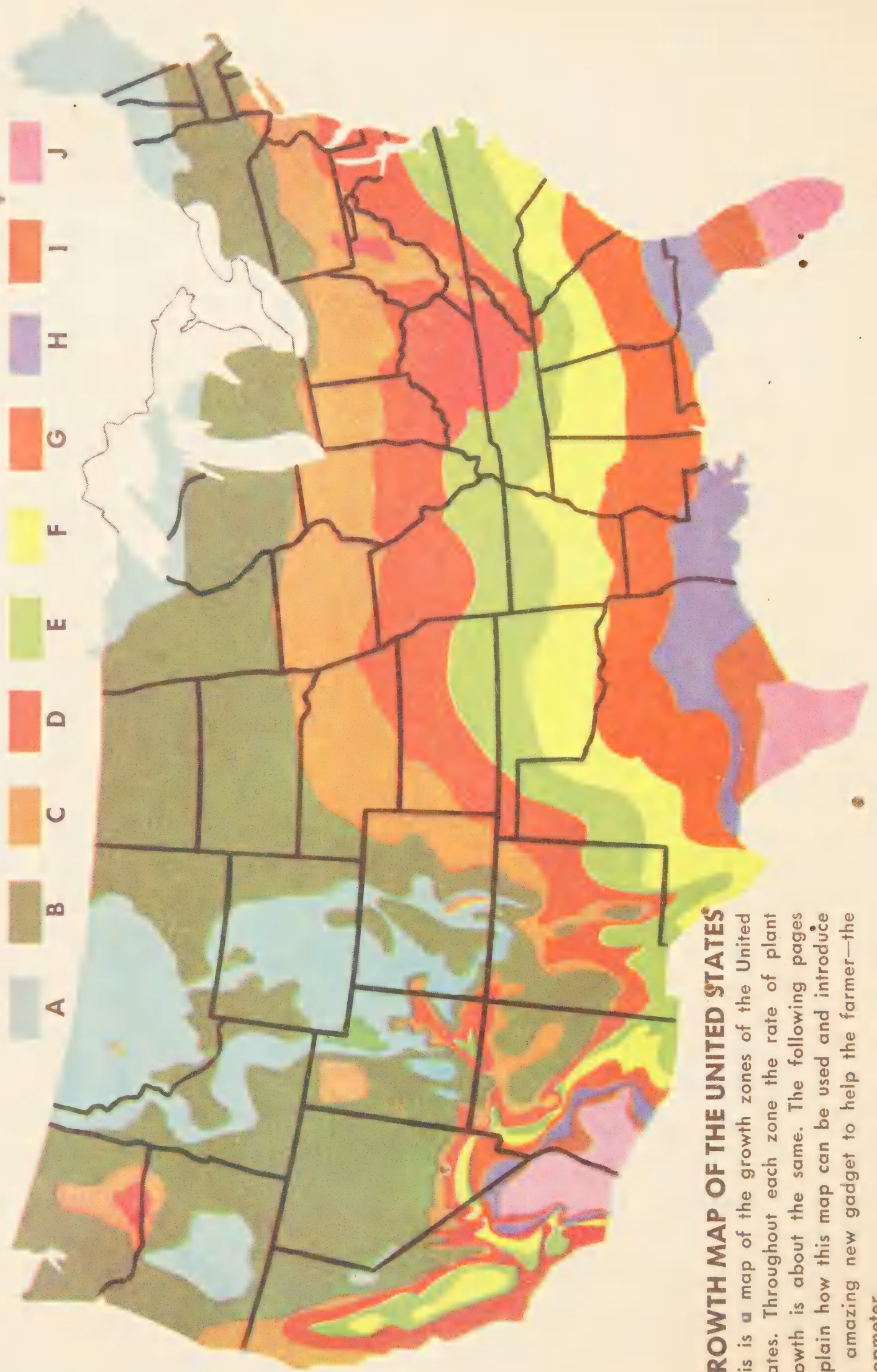
A VILLAIN called "invisible drouth" causes farmers and gardeners to lose as much as two-thirds of their potential crop. That's the estimate of Dr. C. W. Thornthwaite, Johns Hopkins Univ. Laboratory of Climatology.

"When a plant shows it needs moisture, it has already been hurt," he's found in tests on the 20,000-acre Seabrook Farms. He's now developing an "irrigation slide rule" for all sections of the country—and all crops. By measuring their rainfall and using the slide rule, farmers and gardeners can give their crops the right amount of water for maximum yields. See pages 16-19.

Blood Test Tells Gain

BY SAMPLING the blood of a feeder, scientists can now predict how fast the feeder will gain during its life. The blood test—which can take millions of dollars of risk out of cattle feeding—is being developed by Texas A & M.

When will the test be available to farmers and ranchers? "We're progressing rapidly, but due to the complex nature of the test, only a limited number of animals can now be tested," says Dr. H. O. Kunkel.



GROWTH MAP OF THE UNITED STATES

This is a map of the growth zones of the United States. Throughout each zone the rate of plant growth is about the same. The following pages explain how this map can be used and introduce an amazing new gadget to help the farmer—the Cropmeter.

HERE'S A REVOLUTIONARY NEW CROP TOOL!

TO HUMANS, April and June have 30 days each. But to a tomato plant or a stalk of corn, June has 300% more "growing time" than April. And a day in July is five times longer than one at the end of March.

We measure time in hours and days. A plant asks: How much sunshine? How much moisture? How warm?

To C. W. Thornthwaite, Director of Johns Hopkins Laboratory of Climatology, goes credit for first measuring days in *amount of growth they give, rather than number of hours.*

For example, says Dr. Thornthwaite, Alaska peas are a so-called 57-day variety. Planted March 1 at Seabrook Farms, N. J., they ripened in 87 days. Planted June 15, they got ripe in 37 days.

Dr. Thornthwaite found there were only about 10 growth units per day at the end of March. This jumps—as weather warms up and sun shines longer—to 30 growth units per day by mid-May, hits a peak of 53 daily on July 23, then slides off gradually to 6 units daily in November.

Why is such information important? It means you can now plant your garden so nothing will ripen when you're on vacation. Or vegetables can mature through the summer.

To truck gardeners, it means scheduling crops so they'll mature for the highest market, with the least labor. To big processors, it means higher quality and more efficiency.

To general farmers, it means much less guesswork on which variety to plant if spring is late, how best to beat the frost, how to schedule crops for maximum use of labor.

You can even determine when your flowers will bloom.

Won't an extra-warm spell or a wet period throw the date off? Yes, but then all plants will be delayed or speeded up accordingly, so the harvest sequence will be the same.

Here's how Dr. Thornthwaite became interested in a crop calendar:

Pea harvest on the 20,000-acre Seabrook Farms used to be a nightmare as they scrambled to get the crop picked, processed, and frozen at its quality peak. Too many peas ripened at once, and that meant extra labor, spoilage, and lower quality.

By observation of peas planted at frequent intervals through the year, Dr. Thornthwaite found how many "growth units" each day in his area has during the season, and how many it took to mature peas of various varieties.

Result was that peas could be "scheduled" so they would mature in the right amount on the right days to keep the plant humming at full speed.

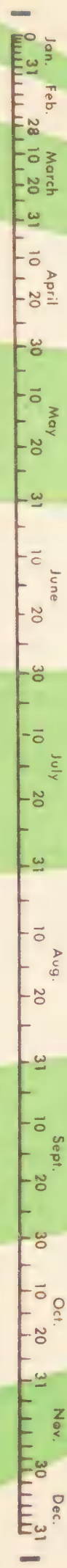
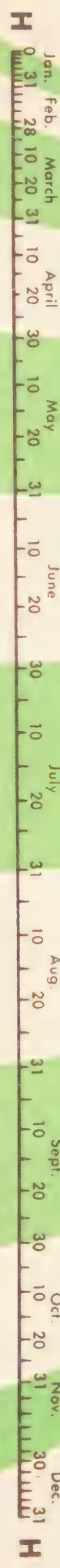
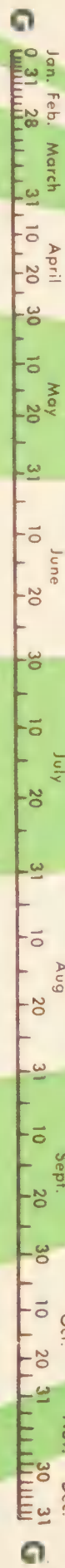
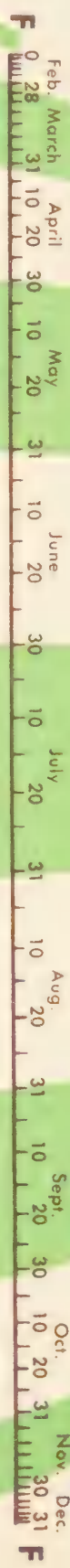
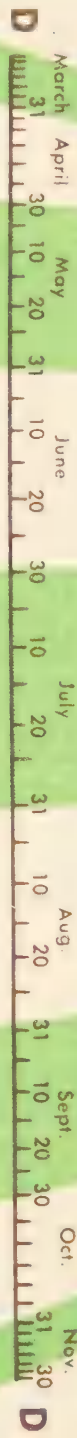
He made the same study of other crops, and of the different varieties, and of how they reacted in different areas of the country. He learned to what extent rates of growth differ in areas of different climate. Accordingly he was able to make a detailed map of the United States by growth zones. (Our simplified map appears on page 16.)

"Too much emphasis has been placed on weather—not enough on climate," believes Dr. Thornthwaite, who is a noted climatologist. A sudden snowstorm in April, or an extremely warm spell in December, is "weather." But the fact that July is warmer than May is "climate."

Says the *Johns Hopkins University Magazine*: "This new crop calendar and other climatology developments foreshadow one of the first truly revolutionary movements in agriculture since the tractor replaced the horse."

Dr. Thornthwaite is not much of a believer in specific weather forecasts weeks in advance—nor in rainmaking. But "I see the day when we'll have climate maps just as detailed and useful as our soil maps. And I also predict we will have climate-testing services for areas as small as a single farm, just as we now have soil-testing services."

GROWTH CALENDARS



HOW TO USE A CROP CALENDAR

For this almanac Dr. Thornthwaite has prepared a growth map (page 16), crop calendars (page 18), and a table (below) with which you yourself can roughly figure planting dates and harvest dates for certain common crops.

Let's say you live in central Ohio and want to plant Golden Cross Bantam sweet corn on May 1. Consult the table below. The table shows that the "growth index" of this corn is 35.0. That is, it takes 3,500 "growth units" to mature.

Now look at the Growth Map (page 16). It shows that you live in Growth Zone C.

Next cut off your Growth Index Guide from the edge of page 18. (Paste it to a strip of cardboard if you want to prolong its usefulness.) On page 18, lay the Guide against the scale labeled "Growth Calendar C" (the correct one for central Ohio) so that the zero of the Index is against your May 1 planting date. Now read over to 35 on the Index. This points to August 1 on the calendar—the date when your corn will be ready.

By reversing the process, it would be easy to figure on what date you would have to plant if you wanted your corn to be ready at a certain time.

Notice how much different plants vary in the number of growth units needed to bring them to maturity. Even varieties of the same plant have widely differing growth needs. Thus sweet corn varies from 27 to 42. If you plant the earliest variety, you will use the growth index 27; if a mid-season variety, about 35.

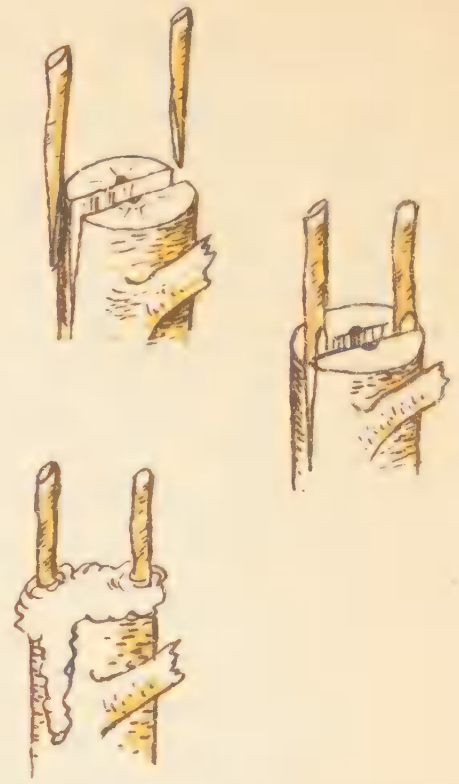
Notice also how much real growth difference there is between regions considered "temperate" in climate. For example, compare central New York (Zone B on the Growth Map) and southern Indiana (Zone D).

The Cropmeter— A Handy Gadget

DR. THORNTHWAITE'S crop calendar is put to practical use in his Cropmeter. A spin of the Cropmeter's dial will give planting and harvesting information on any of 1,200 varieties of vegetables and flowers. The Cropmeter may be obtained from C. W. Thornthwaite Associates, Seabrook, N.J., for \$2.00.

GROWTH INDEX TABLE FOR TYPICAL VEGETABLES

Bush Snap Beans	20-25	Sweet Corn	27-42
Bountiful	20.0	Carmelcross	31.8
Stringless Green Pod	21.2	Golden Cross Bantam	35.0
Bush Lima Beans	34-38	Lettuce	12-25
Clark's Bush	34.8	Iceberg	24.8
Fordhook	37.2	Salad Bowl	14.0
Beets	22-30	Peas	16-26
Asgrow Wonder	23.6	Alaska	16.8
Detroit Dark Red	26.4	Victory Freezer	21.4
Cabbage	23-35	Radishes	9-16
Golden Acre	24.0	Cherry Belle	9.0
Penn State Ball Head	34.0	Icicle	10.4
Carrots	24-32	Tomatoes	23-37
Chantenay	25.0	Burpeeana Early Hybrid	23.8
Tendersweet	27.0	Earliana	26.8
		Stokesdale	29.6



START A ONE-TREE FAMILY ORCHARD

YOU CAN grow a family apple tree on which four or five different kinds ripen from July to frost. No wonder they call it the "one-tree orchard!"

You either buy a multi-variety tree or graft it yourself. John Snyder, Washington State horticulturist, has "built" such a tree in his backyard. In July, he has Lodi and Yellow Transparent. He picks Duchess and Wealthy in August and September, and McIntosh ripen in October.

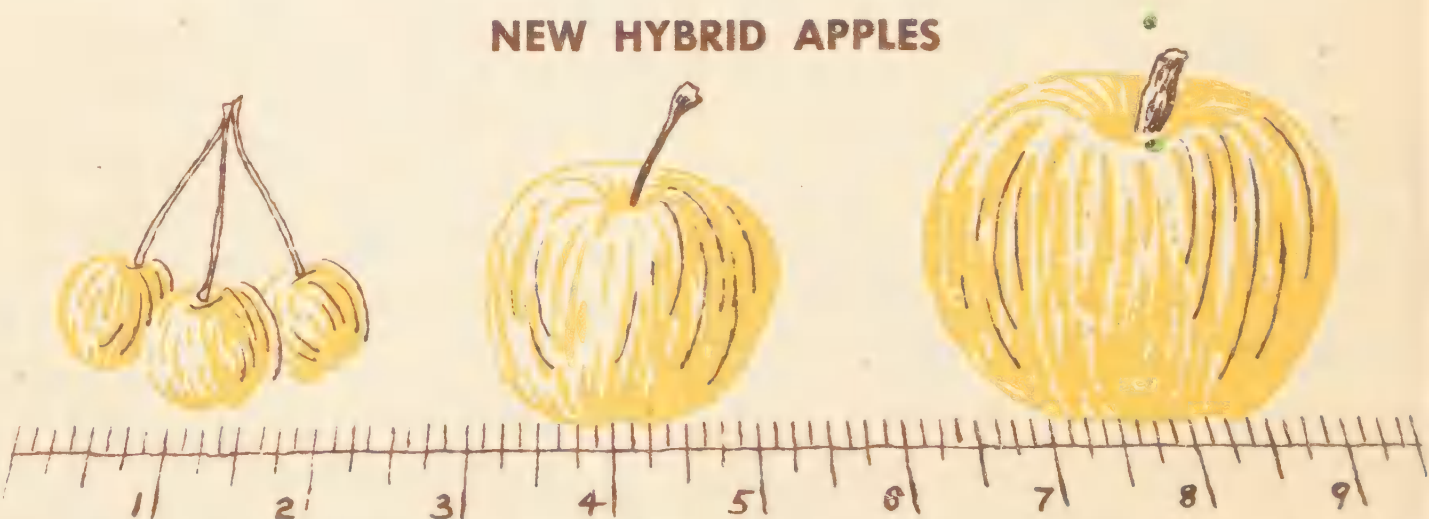
Here are two ways to do this your-

self (and if you want to really make the neighbor's eyes bug out, make one limb a pear branch):

1. Graft new varieties to top-worked branches of an old tree in March or April. Use the cleft-graft method on limbs $1\frac{1}{2}$ to 2 in. thick.

2. Bud a 1-year-old tree in August. Select a hardy variety like Lodi, Duchess, Wealthy, Northern Spy, or McIntosh as the foundation tree. Avoid varieties like Delicious that tend toward narrow-angle branching.

NEW HYBRID APPLES



THOSE TART little crab apples turn out large, tasty fruit when crossed with a standard apple. Best of all, the hybrids are immune to apple scab, which causes about 30% of an orchardist's expense. The first cross gives a $1\frac{1}{2}$ -in.

apple. On the next, size goes up to $2\frac{3}{4}$ in. Breeders in Illinois, Indiana and New Jersey have thousands of these seedlings on test—crab apples crossed with Jonathan, Golden Delicious, Wealthy, McIntosh, and Crandall.

TIP YOUR HAT TO OUR SCIENTISTS

READ these research items—and you'll realize our scientists are working overtime:

Putting a millionth part of aureomycin in ice will keep fish fresh much longer.

Plastic bags, which do such a good job of keeping vegetables fresh, may replace the silo. Chopped forage may be blown into wagons lined with plastic film, which then folds into huge bag to be stored anywhere.

If sunlamps are healthy for humans, why not for chickens too? Answer: They are. In Beltsville, Md., chickens under sunlamps laid more eggs.

In Missouri tests, fermenting feed for pigs boosted their daily gain and decreased the amount of feed required. (No drunks reported.)

Antibiotics, which we normally think of as stimulating livestock growth, will do the same with plants. Penicillin and bacitracin greatly stimulated growth in sweet corn, radishes, and cucumbers.

Dad's crack that "this chicken has only two drumsticks" is out of date. Smart poultry merchandisers now sell ready-to-fry chickens in packages of thighs, drumsticks, and pulley-bones.

Turkey of the future will be white, tenderized with hormones, and born via artificial insemination, predicts Robert Smyth, Univ. of Massachusetts.

Fifty-five bulls now do the job that 10,000 once did in northern Illinois—thanks to artificial insemination.

Hogs will gain more cheaply on a ration having 20% corn cobs, according to Wisconsin researchers.

Antibiotics save farmers 40 to 50 lb. of feed per hog, says Dr. Damon Catron, Iowa State College.

High-frequency radio waves will kill rice weevils in wheat, and pink bollworms in cottonseed. They do it by quickly raising the body temperature of the insects to lethal level.

To keep cherries from bruising, they're being floated to the cannery—in big tank trucks.

Deer did \$46,000 damage in 42 Michigan orchards last year. Now a bone tar oil repellent spray is being developed to keep deer away.

Illinois researchers report progress on a dwarf corn that could be combined like wheat.

Kansas scientists with aid of high-powered listening devices can hear insects gnawing inside grain kernels in bins. Soon we can tell, just by listening, whether corn is infested.

Gamma globulin, protector against human polio, is new hope to prevent a score of livestock diseases, such as hog cholera, brucellosis in cattle, and Newcastle in poultry.

Dairymen say rubber bedding for cows saves bedding and labor.

When apricots were nipped on the trees by a sudden freeze, California scientists sprayed them with 2,4,5-T—and caused them to ripen normally.

Helicopters are used to blow water off ripe cherries, and shake walnuts from the trees.

Sugared pig pellets get pig off to an earlier, thriftier, more profitable start.

... And this parade of new things goes on and on. Hats off to science!

Plants Atom-Bombed

PLANT BREEDERS have had little luck in producing a high-yielding malting barley that has a stiff straw. So scientists at the Univ. of Alberta, in Canada, called in some potent allies. X-ray, radioactive cobalt, and the betatron were used to bombard the plants to cause mutations, or "sports."

Result: Several malting barleys with stiff straw are now ready for testing.

Canadian scientists are using these potent weapons also to develop built-in rust resistance in wheat.

CULL YOUR COWS WITH THIS CHART

BEEF CALVES are like cakes—you can't always tell what's on the inside by looking at the frosting. So Oklahoma A & M researchers have developed this handy chart (below) to help you "see" all of your calves at one age.

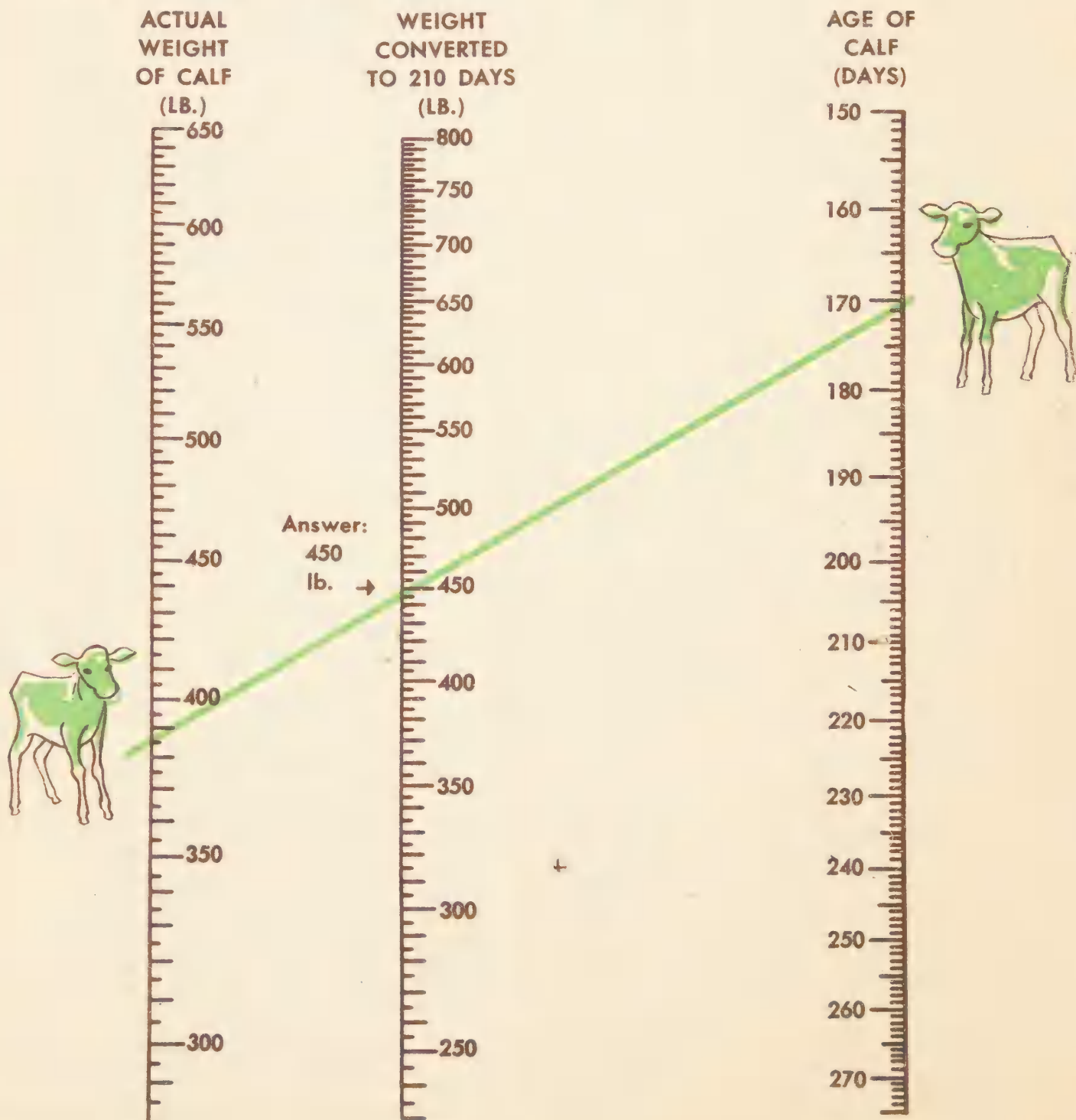
By weighing all your calves and converting their weights to age at 210 days, you can quickly pick out the fast-gaining calves and cull the poor-producing dams. Cattlemen who've used the chart say some of their best calves will weigh 40% more at 210 days than their poorest.

Here's how it works: If a steer calf 170 days old weighs 390 lb., you place

a ruler at 390 on left column and 170 on right. It tells you the calf will weigh 450 lb. at 210 days.

Two adjustments: For heifer calves, add 25 lb. to the converted 210-day weight. If dam is 3 years old, add 35 lb. to calf's converted weight; if 4 years old, add 15 lb.

So if a 3-year-old cow has a heifer calf that weighs 375 lb. at 170 days, the chart will read 440 lb. Add to that 25 lb. because it's a heifer calf, and 35 lb. because dam is only a 3-year-old—and you get a 500-lb. calf at 7 months. A much better cow and a faster-gaining calf than the first one tested!



NEW LOOK IN MILK

Ry. Pluttsch

LOTS of things are happening to our All-American beverage.

You can now feed cows a vitamin which will make her milk stay sweet four times longer. Researchers G. G. Kelly and Karl Dittmer, Florida State Univ., discovered the substance called manadione. When a penny's worth a month was fed to cows (or put in

milk), the milk stayed sweet four times as long in the refrigerator—twice as long at room temperature.

Milk from cows getting manadione stayed sweet for 20 days when it was stored at 50° F., compared with 5 days for regular milk. A pound of the stuff is enough to last 50 cows for a year.

Canned Whole Milk Keeps 6 Months

CANNED whole milk that will keep a week, a month—even 6 months—on your kitchen shelf is now being produced.

Three plants in California, Washington, and Wisconsin are canning milk and shipping it halfway around the globe.

A new process developed by Univ. of Illinois technologists points the way for widespread distribution of canned milk because it helps preserve the fresh flavor of regular milk. A flash sterilization, 300° for 2 seconds, does the trick. Milk thus processed has kept 3 to 6 months, and it retains that milked-last-night-bottled-today flavor.

Three Quarts in One

FARM FAMILIES near Ames, Iowa, are buying 3 qt. of milk in a quart bottle. It's concentrated milk, developed by Iowa State College. The new process promises to open a vast new market in the rural areas where farm families no longer keep a cow.

By mixing 2 qt. of water with 1 qt. of concentrated milk, you get a product that tastes the same as ordinary milk—it's homogenized and pasteurized, and will keep in the refrigerator for 2 weeks. You can mix it with equal parts of water and have cereal cream; use it straight for coffee cream and whipping cream. It's also more easily digested than regular milk.



Cows May Give Us Clue to Why We Go to War

"Cows are not placid! They're a rough lot," reports Dr. M. W. Schein, Louisiana State Experiment Station. He observed a 163-cow dairy herd for less than a year and witnessed 5,000 "contests." Many were head-lowering threats; there were 800 butting cases and 400 actual head-to-head fights.

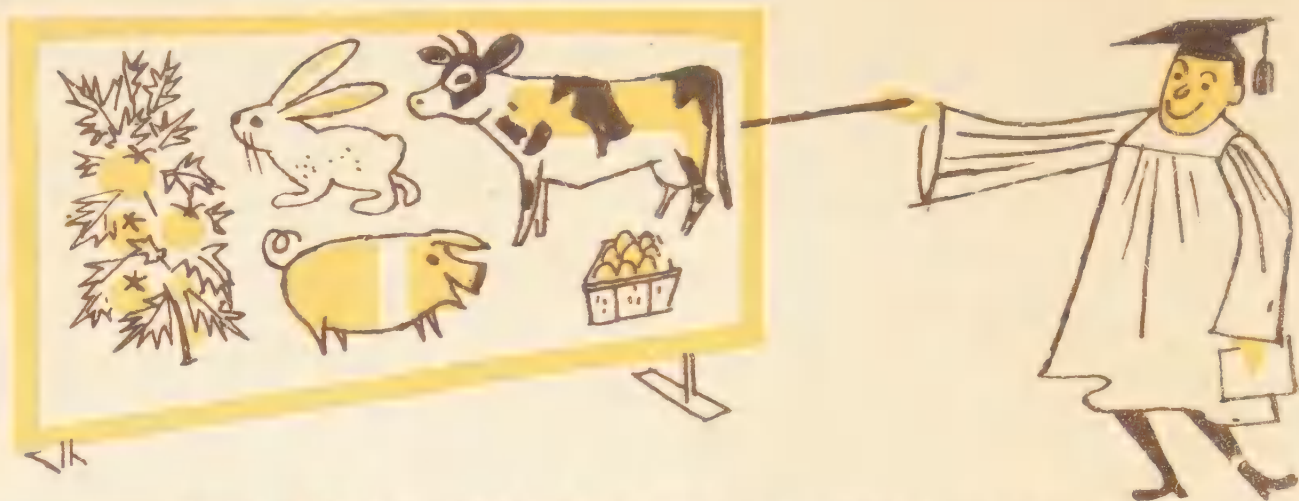
Schein is studying the cows:

1. To find out better ways to manage herds, to get more milk.
2. Because cow behavior might give us some clues to human behavior.

"Cows don't have to struggle for food or survival—so why do they fight?" he asks. "If we can find out why—maybe we could also get an idea of why humans struggle and fight and why we have wars—and be able to do something about it."

Cooler Cows—More Milk

Cows gave more milk in the tropics when they got cool showers while standing in the stanchion during milking time. When showers were stopped, milk production showed a decline of 5%.



UP TO DATE? TRY OUR FARM QUIZ

THINGS are happening fast and furiously in agriculture. Try this quiz to see how up to date you are. Mark each one as true or false. (Answers on page 26.)

1. You can deduct drouth damage to your cornfield and orchard on your income tax. *True. False.*

2. Farmers use only a little less horsepower than all of U.S. industry. *True. False.*

3. If you've bet your neighbor you can grow a bushel of tomatoes per plant in your garden, you've made an impossible bet. *True. False.*

4. A good bull can produce \$1,000,000 more income for dairymen than an average bull. *True. False.*

5. Future Farmers are vo-ag boys who hope to farm some day, but have little or no money and do little farming. *True. False.*

6. Atomic energy is now being used to preserve fresh meat and extend the life of vegetables. *True. False.*

7. Fertilizing corn will cause it to "fire" in case of drouth. *True. False.*

8. Everbearing strawberries are a big disappointment, and bear very lightly. You'll be much better off if you plant standard varieties. *True. False.*

9. A plant will grow as much the first week in June as the first week in July in central U.S. *True. False.*

10. If you have your farm posted "No Trespassing" and a neighbor boy climbs the fence and injures himself

by falling in an open well, his father can sue you and probably collect. *True. False.*

11. A good cattle judge can tell fairly accurately how steers will do in the feed lot. *True. False.*

12. Hogs will produce more food per hundred pounds of gain than either beef cattle or poultry. *True. False.*

13. "Sports" or mutations occur only by natural causes—and then most rarely. *True. False.*

14. It is impossible to make grass grow under big trees, so save your time and put in a green cover crop. *True. False.*

15. It takes at least 100 acres of good farm land to support a farm family. *True. False.*

16. A homemaker can wave her hand and have cabinets glide down within easy reach. *True. False.*

17. Less than one-third of all Americans think persons who live in the city are happier than those who live in the country. *True. False.*

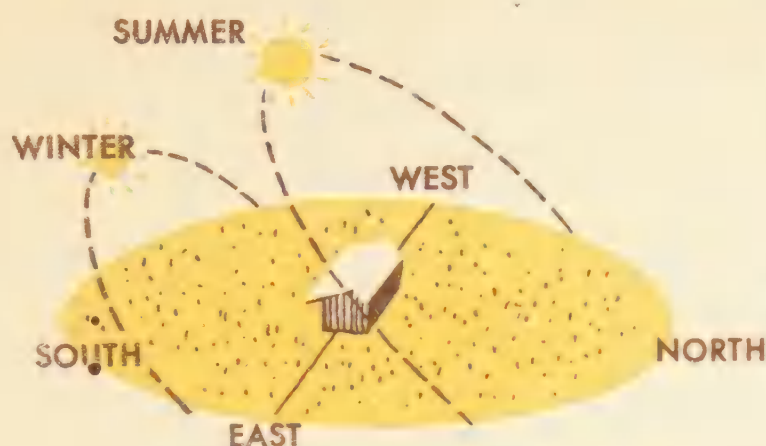
18. You can grow an apple tree which will provide you with ripe apples from June to October. *True. False.*

19. Five rabbit does can produce as much meat in a year as a big beef steer. *True. False.*

20. A soil test is essential to a good garden. *True. False.*

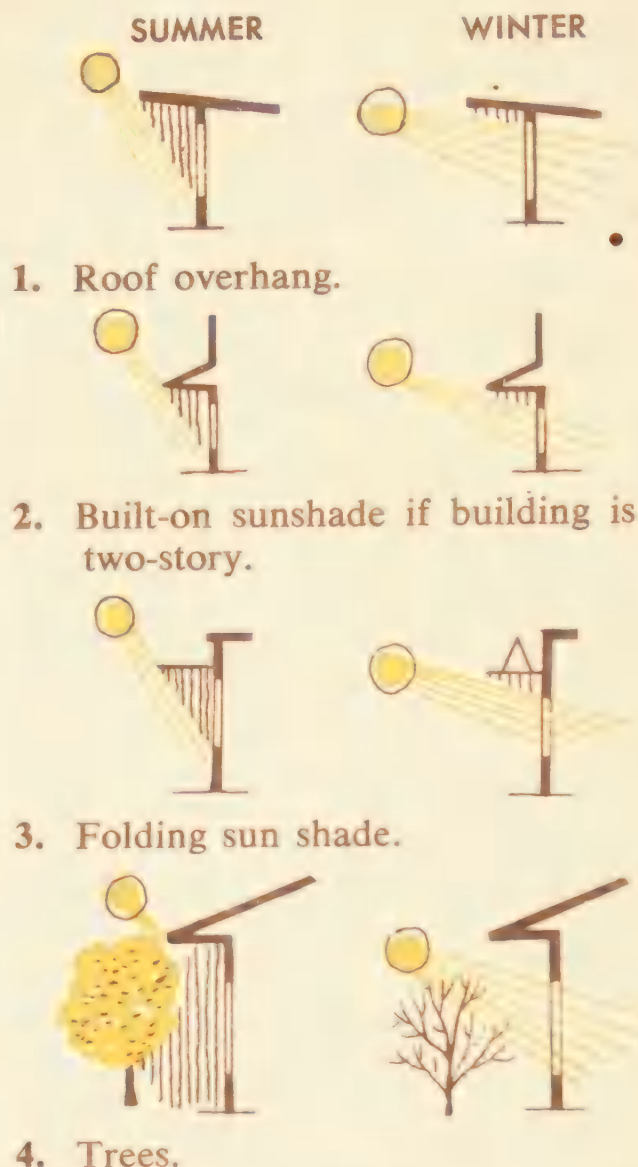
21. Wells can be "witched"—that is, located with a forked stick in the hands of a competent dowser. *True. False.*

✓ KEEP OUT SUMMER SUN—LET IN WINTER SUN



KEEP OUT the summer sun—let in the winter sun. Whether you're talking about your living room or a chicken brooder, the principle is the same, and it's easy to apply. Four ways are illustrated here (at right).

The sun is hard to peg down because its position changes every day. Above is a diagram which shows how widely summer sun differs from winter sun in the temperate zone. Keep this in mind when you plan new buildings. And be sure your architect has it in mind when he plans buildings for you.



FERTILIZER DOLLAR MULTIPLIES PROFITS

A DOLLAR spent on fertilizer will return from \$2 to \$15. To get maximum potential crops you must be alert to check for starvation signs in your growing crops. Leading farmers now use the new tissue test kits that will

tell you whether your plants' pipelines are full of essential nutrients at any time during the growing season. The table shows what 10 lb. of nitrogen fertilizer, worth about \$1.50, will do on various crops.

CROP INCREASE RESULTING FROM ADDITION OF 10 LB. OF NITROGEN FERTILIZER PER ACRE

Kind of Crop	Estimated Crop Increase	Value of Crop Increase
Corn	3 to 5 bu.	\$5-9
Cotton	100 to 140 lb. seed cotton	11-16
Wheat	2 to 3 bu.	5-7
Rice	3 to 5 bu.	7-12
Cabbage	175 to 250 lb.	4
Tomatoes	650 lb.	10
Potatoes	6 to 8 bu.	10-13
Sugar (from sugar cane)	130 lb. (from 1130 lb. of cane)	5
Sudan hay grass	300 to 400 lb.	4-5

ANSWERS TO OUR FARM QUIZ



HERE ARE the answers to your Farm Quiz questions on page 24. Allow 5 points for each correct answer. Score of 100 is perfect; 70 is passing.

1. *False.* Orchard, yes. Corn, no. Assumption is you've already deducted expenses of growing corn, while orchard is a capital item.

2. *False.* Farmers have almost twice as much horsepower available as all of U.S. industry. Average farmer has equivalent of 60 horses.

3. *False.* We've produced a bushel of tomatoes per plant in our own garden. Some folks have produced as high as 2 bu. in tests. It does take a good variety, plenty of plant food, and plenty of moisture.

4. *True.* Danish research shows a top bull's offspring will produce as much as a \$1,000,000 more in income than the offspring of just average bulls.

5. *False.* Future Farmers learn by doing, and many high-school seniors have more than \$2,000 worth of livestock and other equity.

6. *True.* Early experiments using atomic radiation to preserve food are most promising.

7. *False.* Tests show that well-fertilized soil will make better use of available moisture.

8. *False.* That used to be true, but new varieties like Superfection and Red Rich will produce heavily—all summer.

9. *False.* Dr. C. W. Thornthwaite, climatologist, says the important thing is the growth a day gives—not the hours it possesses. And generally speaking, the month of July has more daily growth units than May. (See pages 16-19.)

10. *True.* If they can prove you were "negligent," they can collect, even though you had "No Trespassing" signs up.

11. *False.* Tests show look-alike steers may vary as much as a pound a day in their ability to gain and gain efficiently. Looks can be deceiving!

12. *False.* Top broiler growers get a pound of meat from every 2.7 lb. of feed. Good hog efficiency is 1 lb. of meat from every 3.75 lb. of feed. Beef takes even more feed than that.

13. *False.* Scientists are using atomic rays, X-rays, and the drug colchicine to cause plant mutations—some of which promise to be most valuable to farmers.

14. *False.* Plenty of fertilizer, plenty of water, and the proper variety of grass will give you a good lawn despite heavy shade.

15. *False.* Some poultrymen net \$10,000 to \$15,000 on less than 10 acres. Intensive crops or livestock can "stretch" acreages.

16. *True.* In one experimental kitchen an electric eye does exactly that—a wave of the housewife's hand, and the cabinet shelves come down within easy reach.

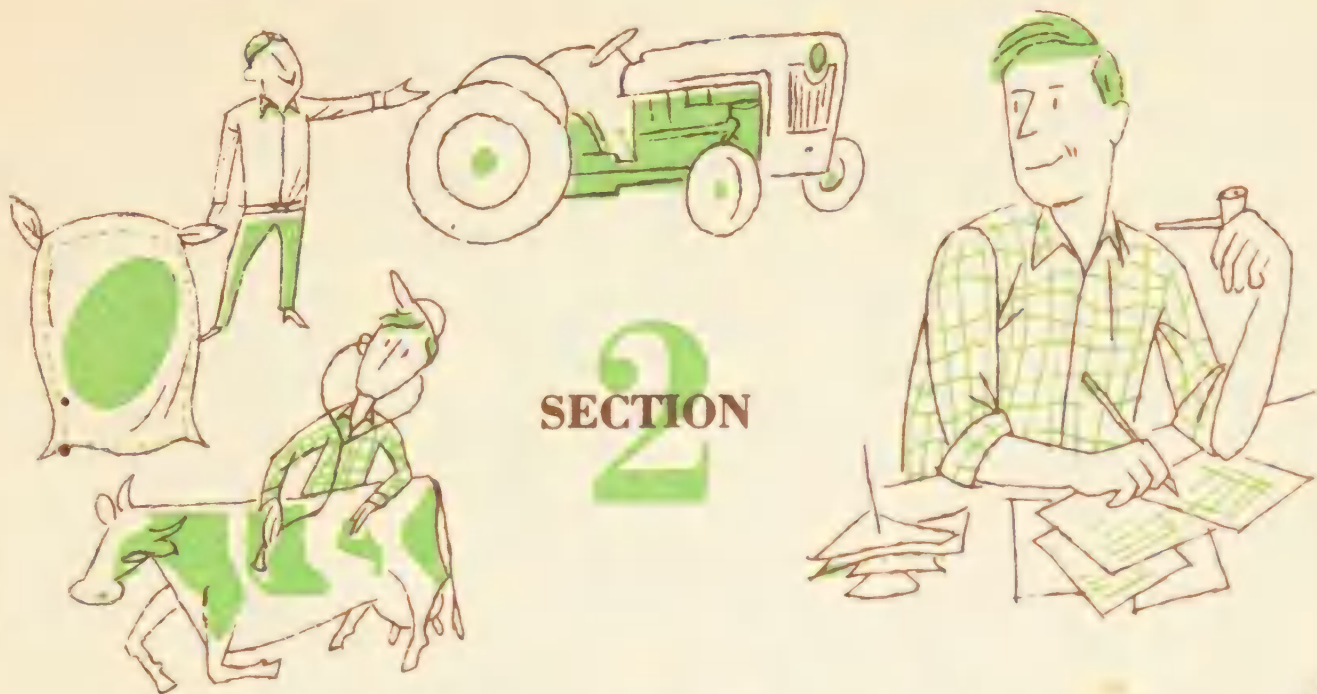
17. *True.* In a recent opinion poll only 21% thought folks who lived in the city were happier than country folks.

18. *True.* But tree must be grafted with different varieties of apples.

19. *True.* A rabbit doe of a fast-growing breed can produce 130 lb. of meat a year. Five could produce 650 lb. It takes a 1,000-lb. steer to do that.

20. *False.* Soil tests are of limited value in an area as small as a garden where many different vegetables and fruits are grown. Best idea is to apply a balanced garden fertilizer.

21. Well? Read story on page 124 and form your own opinion. And whatever your answer, we'll agree (for purposes of the quiz) that you're right.



MONEY MAKERS AND MONEY SAVERS

IF A CHANGE of occupation is really a vacation, a farmer has a vacation every day. Because there's certainly nothing routine about playing nursemaid to \$10,000 worth of cows . . . spot-welding a machinery break . . . dickering on a new tractor . . . deciding whether to hold or sell soybeans . . . or doctoring a pig. It's all in a day's work.

There are always fifty-eleven things to do around a farm. "The farmer who makes the most money knows what things to *do* as well as what work to let go *undone*," says a professional farm manager.

Likewise, there are always a dozen decisions pending. Should you try a new practice, buy a new machine, change your method—all decisions which can either make or save you money, if you decide right. The man who does a good job of both working and deciding is a good "manager." It's a rare quality. No one is perfect at it, but some have higher batting averages than others.

Not all new ideas or research will fit every farm—or every farmer. For example: Research shows that cows freshening in the fall months return \$20 more net income than those freshening in the spring. But that does not mean every dairyman should jump in and breed cows for fall calving.

New research shows you can wean pigs in a week. Some folks can and will make money with this idea. Others will make more by weaning in the conventional way.

With this understanding we offer some ideas which may help you in the perpetual battle of wits and work—money-making and money-saving.

A CHECK on these 20 points may reduce the income tax on your farming. They're all legitimate—and remember, you get no gold stars from Uncle Sam for overpaying your tax! We would suggest also that you consult an accountant or tax expert. They frequently save you more money than their fee.

1. Breeding Animals: Report only half of the sales profits, if you keep cows or sows for 12 months and use them for breeding purposes. If you have a profit of \$1,500 on such animals, your tax saving would be about \$200.

2. Selling Hogs after One Litter: Some farmers who are on a cash basis raise their own gilts, let them farrow once, then sell them. They need pay tax on only half of the sales price.

3. Drouth Damage: If your orchard, woodland, or permanent pasture was hurt by lack of rain, you can list this as a casualty loss. Better get an appraisal of it. You cannot deduct drouth damage to growing crops, because your crop costs are already deductible.

4. Livestock Losses: If you're on a cash basis, deduct for loss of animals which you've bought. (No deduction if you raised them.) If you're on an accrual basis, there's no deduction unless animals lost were set up as capital items and depreciated. Otherwise your loss shows up in the next inventory.

5. Soil and Water Conservation: At this writing Congress has just passed a law permitting farmers to deduct up to 25% of their gross income in any one taxable year for these expenses: (a) leveling, grading, terracing, contour furrowing; (b) construction of diversion channels and drainage ditches; (c) control and protection of watercourses, outlets, and ponds; (d) eradication of brush, planting of windbreaks. See a tax man for the final law on this.

6. Refunds on Terracing: A tax court ruled last year that new terracing was deductible as expense. That means you could get refund on work

20 WAYS TO PA



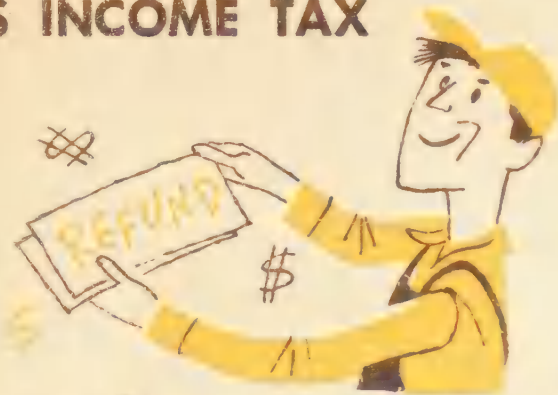
done during 1951, 1952, and 1953. But be sure of your case before filing for refund. Remember, revenue men will check your returns carefully.

7. Buying Supplies before End of Year: If your 1954 income is high, and 1955 is not certain to be higher—then lay in supplies such as feed, seed, and fertilizer now—they're deductible this year. Also paint buildings. If on a cash basis, you must pay for items before end of year, although you can take delivery later. If you borrow money to pay for them, you can deduct the interest. If you're on accrual, you don't have to pay for them, but should take delivery.

8. Paying All Bills before Dec. 31: Every \$100 paid this year will reduce your tax by about \$25, depending on what bracket you're in. So pay doctor and dentist bills if you're over the 5% medical limit. Prepay state income taxes (possible in some states). Pay up interest, and prepay it if you like. But don't overdo this; it might put you in a higher income-tax bracket next year.

9. Making Repairs: If 1955 income promises to be less than 1954, make repairs by Dec. 31, 1954. Don't get mixed up. A *repair* puts property back in operating condition but doesn't add to its value or extend its life (example: new fan belt on tractor). An *improvement* replaces property, making it last longer and increasing its value (example: new concrete floor in barn).

10. Payments to Son, Daughter, or Older Relatives Claimed as Dependents: The tax law has allowed you to pay such dependents up to \$599 and charge it as expense—if they actually worked



on the farm, and *if* you actually paid them the money. (Payment of over \$599 would require them to file a return.) Check on whether the present law still has this provision.

11. Depreciating Grain Storage: You can depreciate storage facilities built after Dec. 31, 1952, at rate of 20% a year. Formerly the period was 10 to 25 years. This fast write-off also applies to cost of remodeling a building either to increase storage capacity or to convert it to a crib or bin.

12. Charging off Business Trips: Expenses of attending farm organization convention or of trips to buy cattle are deductible. (Don't include nightclub checks.)

13. Depreciating All Items the Maximum: Be sure you list all farm improvements, tile lines, fences, machinery, dairy, or breeding animals which have reached maturity.

14. Deducting Dues and Business Magazines: Your farm organization dues, farm management service, business reports, farm magazines—yes, even the dollar you paid for the FORD 1955 ALMANAC—are deductible.

15. Office in Your Home: If you use a room in your home primarily to keep a desk, files, and farm records you can deduct a fair amount of house depreciation, plus light and heat. Of course, stationery and stamps and other supplies are deductible business expenses.

16. Your Auto Upkeep: If 75% of your milage is for business, then deduct that much of your cost for gas, oil, insurance, lubrication, repairs, license, and depreciation.

17. Graveling a Farm Lane: New gravel or expense of upkeep is partly deductible as business expense. Part of it would be personal.

18. Farm Losses: If you lose money on your farm one year, you can carry the loss back to last year and get a refund. Any "unused loss" can be carried forward to next year. • Better see a tax man on this.

19. Property Losses: All property losses due to drouth, fire, hail, flood, lightning, disease, freezing, wind, and collision are deductible. You must first subtract any insurance collected.

20. Sealed Grain: If desirable, you can report a Commodity Credit loan as income when the grain is delivered—even though that's the following year.

A 50¢ Farm Record Book Makes You Money

A 50¢ farm account book can *save* you \$50—and *make* you far more.

For example, if you've had a farm repair job on your tractor which cost \$16, and you forget to enter it on your tax form—you'll pay \$4 extra in taxes. Keeping a good farm account book is the easy and sure way of getting *all* the deductions coming to you.

Here's an example of how it *makes* you money: A dairyman was high-production minded. To get more milk he kept feeding more grain until he was feeding 2 lb. of grain for each pound of milk produced. But his account book told him he was spending \$3 for extra feed to get \$2 worth of extra milk. He quickly adjusted his ration. By feeding less grain, he got less milk, but he made 20% more net profit. Accurate records tell you where you make and where you lose money.

You can get a farm account book for 25 to 50¢ from your county agent. We have nothing against calendars, but you're cheating yourself if you expect haphazard entries on them to do the job for you.

COST OF PRODUCING A DOZEN EGGS

CORNELL poultrymen suggest this formula for figuring your cost of production for a dozen eggs:

Feed:

$$7.2 \times \text{Price per lb.} =$$

Labor:

$$0.11 \times \text{Labor cost per hr.} =$$

Depreciation:

$$0.035 \times \text{Bird's farm value} =$$

Other costs:

$$0.13 \times \text{Total of 3 above items} =$$

$$\text{Annual average cost} =$$

For example: If feed is \$4 a hundred, feed cost is 29¢ a doz. If labor is 75¢ an hour, labor cost is 8.3¢ a doz. If hen is worth \$1.65, depreciation is 5.8¢. Other costs are 13% of this total, or 5.6¢—making a total of 48.7¢ cost per doz. eggs.

FARMER'S SHARE OF DOLLAR

(From USDA, Bureau of Agricultural Economics)

You get for:	Marketing system gets:
Poultry and eggs 69¢	31¢
Meat 63¢	37¢
Dairy products 48¢	52¢
Fruits and vegetables. 29¢	71¢
Grain (bakery and cereal) products .. 22¢	78¢



EGGS LAID, BY BREEDS

THIS TABLE tells three stories: (1) Light hens, such as Leghorns, eat less feed per dozen eggs laid. (2) The more all hens eat, the heavier they lay. (3) Heavy layers are most profitable because it may take only 2 lb. of feed to get that extra dozen eggs.

The following table shows feed eaten by each 100 hens of varying weights for different rates of lay:

Daily Production for Each 100 Hens	Pounds of Feed 100 Hens Eat per Day				
	4 Lb. hens	4½ Lb. hens	5 Lb. hens	5½ Lb. hens	6 Lb. hens
0 eggs	16	17	18	19	20
49 "	23	24	25	26	27
70 "	26	27	28	29	30
84 "	28	29	30	31	32
98 "	30	31	32	33	34

CHECK YOUR FEED

IF YOU want to know how you're doing on poultry feeding, weigh your feed each day and note it on a chart tacked to the wall, along with number of birds, if broilers; eggs laid, if they're hens. This way you can determine your feed efficiency.

Broilers that take more than 3½ lb. of feed per lb. of gain eat up the profits. Hens that eat more than 7 lb. per doz. eggs leave little profit.

"BIG-NUMBER" FERTILIZERS CHEAPER IN LONG RUN

THERE is a lot of extra work in low-analysis fertilizer—and it costs more for what you get. A farmer who uses 2,000 lb. of 4-8-8 could do the same job with only 1,000 lb. of 8-16-16—or 667 lb. of 12-24-24.

Big-number fertilizers mean fewer bags for a man to handle, less time to apply, and less cost for extra filler material, trucking, bagging, and storing.

NO DAIRY BREED HAS NATURAL ADVANTAGE

DOES any breed of cows have a natural advantage over other breeds? Univ. of Wisconsin dairy specialists say "No"—that there are far more differences *within* breeds than *between* breeds.

They tested three typical groups of cows, whose butterfat and milk production varied as you would expect among Holsteins, Guernseys, Brown Swiss, and Jerseys. The results:



COSTS AND RETURNS FOR THREE TYPES OF COW

Cow with Butterfat Test of	Total Return per Cow	Total Cost per Cow	Net Return per Dollar of Total Cost	Net Return per Cow
5.3%	\$392.98	\$340.61	15¢	\$52.37
4.8	414.62	359.32	15	55.30
3.5	471.05	408.23	15	62.82

EXCESSIVE GRAIN FEEDING WASTES MONEY

How much grain should be fed to your dairy cows? Purdue Univ. tests show the more grain fed, the less hay is eaten. Milk production goes up, but there is a point beyond which grain cost exceeds value of extra milk:

Ratio of Grain Fed to Milk Produced	100 lb. More Grain Gave This Much More Milk
1:6 lb.	97 lb.
1:4	77
1:3	59
1:2½	45
1:2	31

YOU JUST "BREAK EVEN" WITH "AVERAGE" COWS

THE cow that produces only 5,000 lb. of milk just barely breaks even, says USDA Researcher J. F. Kendrick. Yet the U.S. average is only 5,328 lb. of milk. That means perhaps a third of all the cows in the U.S. are "boarders," and dairymen who milk them get little more in return than the cows' company.

Production (lb.)	Feed Cost	Return per Cow over Feed Cost	Profit
5,000	\$146	\$151	(Break even)
9,192	165	234	\$ 75
13,000	260	393	200

COMPOSITION OF MILK

Mammal	Fat	Protein	Sugar	Minerals	Total Solids
Cow	4.00%	3.50%	4.90%	0.70%	13.10%
Goat	4.09	3.71	4.20	0.78	12.86
Woman	3.70	1.63	6.98	0.21	12.57
Mare	1.59	2.69	6.14	0.51	10.96
Sow	6.77	6.22	4.02	0.97	17.98
Ewe	6.18	5.15	4.17	0.93	16.43
Water buffalo	12.46	6.03	3.74	0.89	23.91
Camel	5.4	3.00	3.30	0.70	12.39
Reindeer	18.70	11.10	2.70	1.20	33.70
Whale	22.24	11.96	1.79	1.66	38.14

IDEAS THAT MAKE MONEY

Good forestry practices on 40 acres of timber produced an annual profit of \$1,200 in a 15-year Univ. of Arkansas test. An adjoining stand, with poor management, made only \$573 annually.

Cows that freshen during September, October, and November netted \$20 more over feed costs than those that calved during March, April, and May. Milk price is higher in fall.

Maximum corn yields occur when you plant thick enough to produce ears weighing 0.6 lb., says Dr. G. E. Smith, Univ. of Missouri agronomist.

Individual laying cages for chickens have returned a net profit as high as \$4.50 per cage per year in Alabama tests.

Many net incomes could be doubled if farmers realized two things, says Ted Swigart, Illinois Farm Management field man: (1) Their farm could produce much more if a maximum soil fertility program were followed. (2) Long-term credit is available to finance such a program.

High production per animal unit gives you high production per man, Michigan State studies show. With average cows and average practices, labor income per farm operator was \$1,553. When these farmers switched to good cows, their income increased to \$2,959. When they also improved their crop and livestock practices their labor income jumped to \$5,733.



IDEAS THAT SAVE MONEY

Mastitis costs you \$70 if it affects just one quarter of one cow's udder, says Dr. W. E. Peterson, Univ. of Minnesota.

A wormy hog costs \$5 more in feed, plus 5 weeks more time, to get to market. A moderately wormy hog eats 0.8 lb. more grain each day than a worm-free hog, reports Dr. N. D. Levine, Univ. of Illinois parasitologist. Sanitation and antibiotics can whip worms.

Crowding livestock can cost you \$50 a steer, or \$10 a hog. Buyers automatically discount livestock which has been down or trampled in transit. Don't overload livestock in trucks or cars.

Building a corn crib that costs up to 48¢ for each bushel of capacity is economical, says Earl Swanson, Illinois economist. He bases this on corn prices for the last 14 years. Corn has averaged 15¢ a bu. higher in July than at harvest time.

Keep out pigeons and sparrows by screening the poultry-house windows. They spread Newcastle and bronchitis from farm to farm, says Monroe C. Babcock, New York poultryman.

Inexpensive animal fats added to steer rations help conserve corn, say Nebraska researchers.

Overloaded wires and switch boxes can cost you \$6 more a month on your power bill—and could cause fire.

Every rat costs you \$20 a year, says a Wisconsin rodent-control specialist. A few cents invested in Warfarin rat bait will kill your rats and save you money.

A bulk milk cooler saves Hugo Hetzner \$600 a year. This Saginaw Co., Mich., dairyman says he gets 3¢ a hundred more for bulk sale. He gets 6¢ more because the milk tests better. He figures 5¢ more because he markets more milk. And he saves 6¢ hauling costs. Total: 20¢ a hundred.

ANOTHER FARM RISK: LETTER FROM A LAWYER



FARMING always has been a risky business. But a new risk has cropped up—that letter from a lawyer! It may inform you that the carpenter who was working on your barn broke his leg on a rotten ladder you gave him . . . or a woman guest had her dignity injured when chased by a bull which got loose . . . or a neighbor's crop was ruined when your 2,4-D spray jumped the fence line . . . or a boy hunting rabbits on your farm fell into an old well and broke an arm.

The lawyer's letter says, in effect, "We'll be suing you."

Some of these accidents may be your fault, and some not. The real test is: Were you negligent? If so, then you can expect to pay damages. But what does "negligent" mean? H. W. Hannah, Illinois professor of agricultural law, defines it as "Failure to exercise ordinary care under the circumstances."

Best way to avoid trouble and sleep easy is to get a comprehensive liability insurance policy. The proper one for you may cost as little as \$10. Yet fewer than a fourth of farmers have them.

Suppose your Holstein bull jumps the fence and breeds a neighbor's show-ring Angus heifer. You're liable.

Suppose your hogs root under the fence and get on the highway some night. Along comes a car traveling at high speed, makes sausage of your hog, and turns over into the ditch, in-

juring the driver. You'll get a letter from his lawyer.

A teen-age boy drives your tractor and has an accident on the highway. Trouble. Your hired man loses his arm in a corn picker. He can force you to pay damages.

A liability insurance policy does two things: (1) Protects you in suits where you're at fault. (2) Protects you and pays attorney's fees where you're not at fault.

Even though you have your farm posted against trespassers, you may be hooked. Let's say a child falls while playing in an abandoned barn near the highway. A jury may decide that this is "an attractive nuisance," and you may be stuck for \$5,000.

A farmer hired a carpenter to work on a barn. He fell through some rotted boards over an abandoned cistern and permanently disabled himself. The farmer paid a \$50,000 settlement and lost all he had.

A farm liability policy is cheap protection.



SELL YOUR OWN STUFF

WALTER LEW and Thorp, Wis., businessmen cooperated to promote the sale of farm products with this barn sign. Sounds more logical than renting the side of the barn to sell beer, doesn't it?

THEY MAKE A JOB OF MANAGING YOUR FARM

A WIDOW had to decide, "Should I try to run the farm myself? Or should I sell out?" She finally hired a professional farm manager. He relieved her of the management burden, yet left her with substantial farm-producing income.

A businessman whose job is in the city had a problem—how to operate his farm at long distance. His solution: a professional farm manager who took on the job of managing the farm, getting a tenant, checking the insurance, planning the rotation, making the 101 decisions which came up. The businessman retained his interest, participated in the decisions, enjoyed a good farm return, but was not burdened by all of the details of running it.

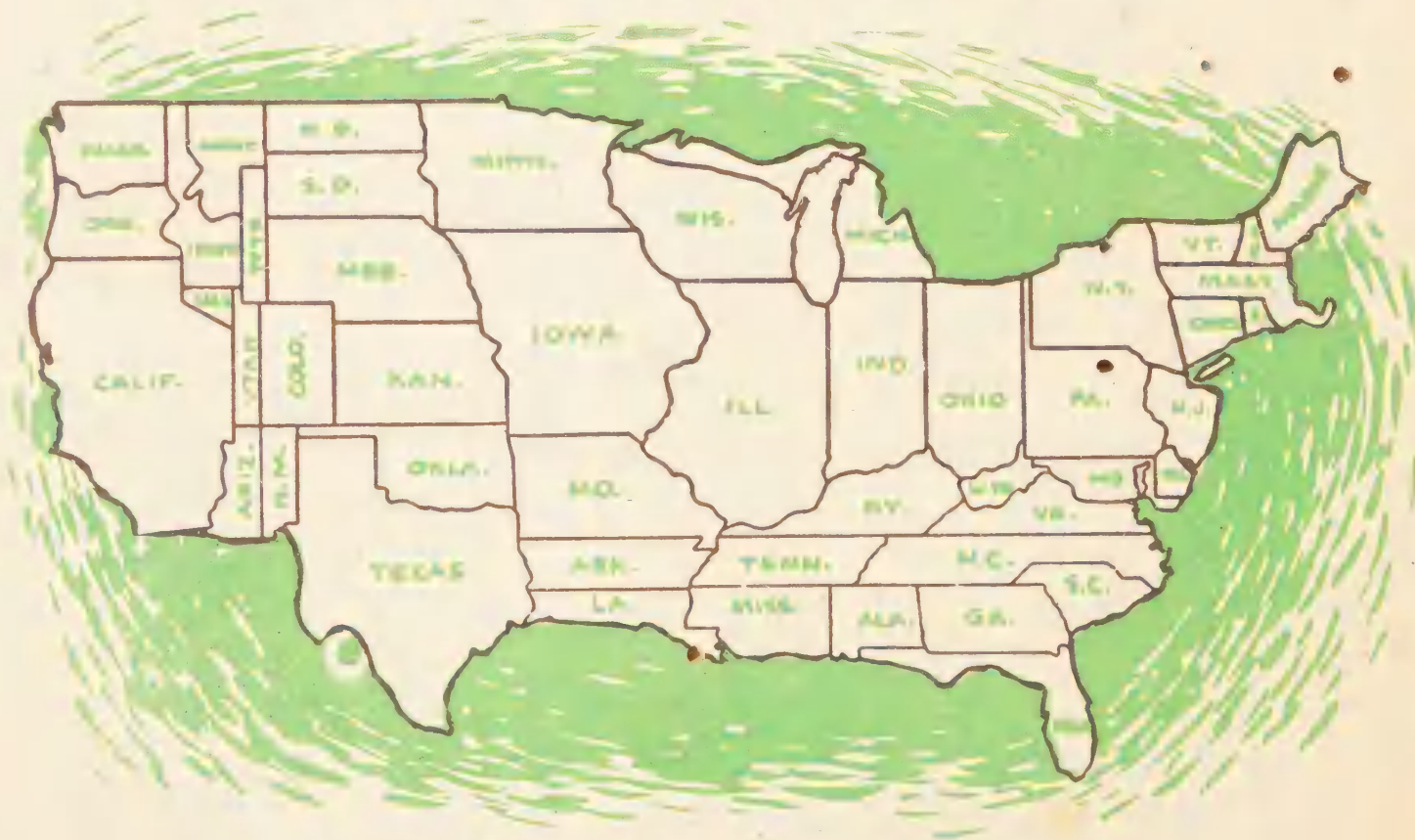
Professional farm management has grown by leaps and bounds during the past few years as operating a farm has become a bigger and more complex business.

Some farm managers work on a flat monthly fee, or a percentage of the gross. But actually "if our service is to be worth while at all, it must be free," says D. Howard Doane, dean of the farm managers and head of Doane Agricultural Service, St. Louis, Mo. In other words, a good manager will make enough to pay his fee and add profits for the owner.

In many states Farm Management associations are springing up. For \$40 or \$50 a year, a farm management field man keeps your farm records, visits your farm regularly, helps analyze your strong and weak points, and suggests how you can earn more.

But does this pay? A dozen Franklin Co., Vt., farmers can testify it does. In an 8-year project, in which they had competent farm management advice, they built their average earnings from \$1,551 to \$4,564. Comparable farms without such advice earned only \$2,623.

HERE'S A FARM-DOLLAR VIEW OF THE U.S.



THIS United States map prepared by Ray Hurley, Census Bureau, measures the size of states in terms of farm

products sold. Sort of whittles some down to size—and blows up others, doesn't it?

TO TELL AGE OF TREE

MEASURE the diameter of the tree breast high in inches, and multiply by the following number, according to the kind of tree: chestnut, elm, tulip tree—2½; black walnut—3; black oak—3½; birch, sweet gum, red and scarlet oaks, sycamore—4; ash and white oak—5; beech, sour gum, sugar maple—6; shagbark hickory—8. Result of multiplication is age of tree in years.

TO MEASURE GRAIN

Small Grain: Multiply width by length by depth in feet—then multiply by 0.8 to get number of bushels. There are 1¼ cu. ft. in a bushel.

Ear Corn: Multiply width by length by depth in feet—then multiply by 0.4. There are 2½ cu. ft. in a bushel of ear corn.

Round bins, or cribs: Multiply the square of the diameter by 0.7854, then multiply this product by height to get number of cu. ft. Multiply by 0.8 for small grain and shelled corn, and 0.4 for ear corn to get bushels.

CAPACITY OF TRENCH SILO

Depth (ft.)	Top Width (ft.)	Bottom Width (ft.)	Tons per Ft. of Length
6	11 •	7	0.9
6	13	8	1.1
8	10	6	1.1
8	12 •	7	1.3
8	15	8	1.6
10	11	6	1.5
10	15	8	2.0
10	18	10	2.5

CU. FT. IN TON OF HAY?

Kind of Hay	Length of Time in Stack	
	30 to 90 days	Over 90 days
Alfalfa	485 cu. ft.	470 cu. ft.
Timothy	640	625
Wild hay	600	450
Timothy-clover.	581	515

A rule of thumb on hay measuring: 8 by 8 by 8, or 512 cu. ft.=ton.



ROUGHAGE GIVES MORE FEED AT LESS COST

PASTURE, hay, and silage produce animal-feed nutrients at lower cost than grain, says Frederick Hughes, Ohio State economist. Costs of total digestible nutrients in 100 lb.:

Corn	\$3.60
Wheat	5.00
Alfalfa hay	2.50
Good pasture	0.75

BUSHEL NOT ALWAYS A BUSHEL

SEVENTY pounds of ear corn will not always shell out exactly 56 lb.—even when corrected for moisture.

In Ohio tests in 1951 it took only 66.7 lb. of ear corn from one load to shell out 56 lb. of shelled corn. But it took 77.8 lb. of another load to shell out 56 lb.

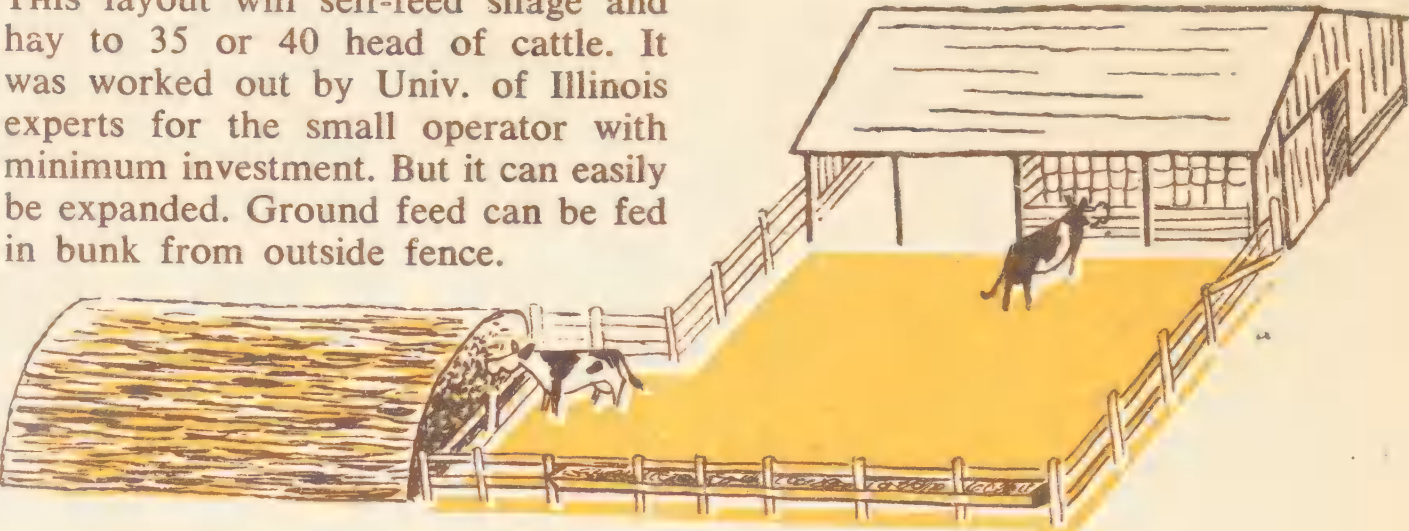
In 1952, the range was from 66.7 to 81.2 lb. of ear corn to shell out 56 lb.

LIFE OF UNTREATED POSTS

Years		Years	
Osage orange ..	30	White oak	11
Locust	24	Tamarack	10
Red cedar	20	Cherry	10
Mulberry	17	Hemlock	9
Catalpa	16	Sassafras	9
Burr oak	15	Elm	9
Chestnut	15	Ash	9
White cedar	14	Red oak	7
Walnut	12	Willow	6
Pine	11		

SELF-FEEDING LAYOUT FOR 40 CATTLE

THIS layout will self-feed silage and hay to 35 or 40 head of cattle. It was worked out by Univ. of Illinois experts for the small operator with minimum investment. But it can easily be expanded. Ground feed can be fed in bunk from outside fence.



CUBIC YARDS OF CONCRETE IN FLOORS OR SLABS

Area in Sq. Ft. (length x width)	Thickness in Inches				
	4	5	6	8	12
50	0.62	0.77	0.93	1.2	1.9
100	1.2	1.5	1.9	2.5	3.7
200	2.5	3.1	3.7	4.9	7.4
300	3.7	4.7	5.6	7.4	11.1
400	4.9	6.2	7.4	9.8	14.8
500	6.2	7.2	9.3	12.4	18.6

FIRE FEEDS ON CARELESS DEEDS

THREE thousand farm people will lose their lives from fire—and \$133 million in property will go up in smoke—this year.

Suggestions that may prevent fire:
Replace damaged lightning rods or wires. Secure ground connections.

Correct defective chimneys. Never store gasoline in the house. Do not use kerosene, gasoline, or any other inflammable liquid to start house fires in stoves, ranges, or fireplaces.

Replace worn or frayed wiring. Do not overload electric butlets.

TO FIGURE CONCRETE NEEDED FOR FOOTINGS AND WALLS

Width In.	Height in Inches																
	4	6	8	10	12	14	16	18	20	24	30	36	48	60	72	96	120
4	.004	.006	.008	.010	.012	.014	.016	.019	.021	.025	.031	.037	.049	.062	.074	.099	.124
6	.006	.009	.012	.015	.019	.022	.025	.028	.031	.037	.046	.056	.074	.093	.111	.148	.195
8	.008	.012	.016	.021	.025	.029	.033	.037	.041	.049	.062	.074	.099	.123	.148	.197	.247
10	.010	.015	.021	.026	.031	.036	.041	.046	.052	.062	.077	.093	.123	.154	.185	.247	.309
12	.012	.019	.025	.031	.038	.043	.049	.056	.062	.074	.093	.111	.148	.185	.222	.296	.370
16	.016	.025	.033	.041	.049	.058	.066	.074	.082	.099	.123	.148	.197	.247	.296	.395	.494
20	.021	.031	.041	.052	.062	.072	.082	.092	.103	.123	.154	.185	.247	.308	.370	.494	.617

Select from the table the factor corresponding to the width and height of the footing or wall. Multiply this factor by distance around building in feet. Answer is the number of cubic yards of concrete needed.



FARMING AROUND THE WORLD

AGRICULTURE is international! Americans have much to *give* and much to *get* from overseas! Your editor is more convinced than ever of this after his sixth world trip this year.

"How do you farm land intensively for 500 years—yet build soil, not destroy it?" The Germans are doing it.

"What happens when you use only chemical fertilizers for 110 years on continuous crops?" England is finding out.

"Could all of our 160 million people live in a state like Georgia?" The Dutch have pushed back the sea, and now grow the highest yields in the world on former ocean bottoms.

American farmers with mechanization, know-how, and ingenuity feed a population that's doubled in 50 years, and we're eating better than ever. But let's not forget: our livestock, basic crops, and much basic research came from overseas.

Today we're sending hundreds of American ag technicians to other lands—overallled ambassadors with calloused hands. In the long pull it's going to take that kind of teamwork on a world basis to keep the wolf of famine from the door. For despite present U.S. surpluses, half the world still goes to bed hungry. There are 50 million extra mouths to feed each year—and fewer acres.

The agricultural knowledge of the world must be shared. The story of what's new must be dug out and told. That's one reason why the FORD 1955 ALMANAC has a French edition—why it will also go into a dozen other countries in modest numbers. This year, and in coming years, we'll carry the highlights of what's new in farming abroad, as well as at home. For growing and raising of food is and will continue to be the biggest story in the world.

ENGLISH CLAIM "MOST MECHANIZED" TITLE

MACHINERY-MINDED English farmers claim this title: "Most mechanized country in the world."

The Institute of Agricultural Engineering at Silsoe, England, is developing four new machines of real interest to farmers everywhere:

1. Hydraulic Tractor: It uses a regular tractor engine to drive the hydraulic oil pump, connected to cylinders in each rear wheel. Here are advantages cited by M. J. Hamblin, head of mechanical engineering at the I.A.E.: (a) No differential, gears, or transmission. (b) Lots of open space on tractor frame; this permits design of implements to do the job rather than to fit the tractor. (c) Speed control; machine will go as slow as 400 ft. an hour; one lever controls both forward and backward speeds. (d) Foolproof design: can't ride clutch, burn out, or strip gears.

It's not new; a hydraulic tractor was tried in 1910. But Hamblin believes that with the vastly greater hydraulic know-how available today,

there's a good chance of its "catching on." Several companies are watching it closely.

2. Endless-belt Thresher: This machine does away with straw racks, threshes cleanly. Should greatly reduce size and cost of combine.

3. Potato Harvester: Experimental models at work meet these exacting standards: simple; don't clog; work in every soil; use a minimum of labor; will put clean potatoes in bag or trailer. This harvester, designed for farmer who has 20 or 30 acres of potatoes, may sell for as low as \$750 or \$800. Added feature: farmer can buy parts—(a) digger part only, which digs, pulls off tops, discards weeds, and puts potatoes out on ground; (b) digger and elevator; or (c) machine complete with digger, elevator, and separating conveyor or trailer.

4. Peanut Harvester: It will dig peanuts, clean them, bag them—and it will sell at one-fifth the cost of present harvesters.

ELECTRICITY DRIVES TRACTOR, KILLS WEEDS



The ELECTRICAL RESEARCH ASSOCIATION of England is experimenting with two new machines:

Electric Tractor: Tower in middle of 5-acre piece permits garden tractor to operate with 110-yd. cable. Counterweights keep cable tight. It is hoped higher initial cost of electric tractor, cable, and tower will be offset by reduced running costs, ease of starting and handling, and low maintenance.

Electric Weed Killer: Engineers have developed machine for singling root crops and for destruction of deep-rooted weeds, particularly on hilly land where mechanical cultivations are impracticable. A smaller model can be carried in a shoulder pack.

HOW A BULL CAN BE WORTH \$1,000,000

CAN ONE bull be worth a million dollars? The Danes think so. Here's how:

Woldan was one of the most sought-after bulls at the artificial insemination co-op. He'd won many purple ribbons. And he *looked* the part of a good bull.

Then came the crushing news. In the bull test, Woldan ranked 63rd of 65 bulls in service. His daughters produced 30% to 40% less milk and butter than offspring of the top 10 bulls. Woldan was hustled off to become bologna.

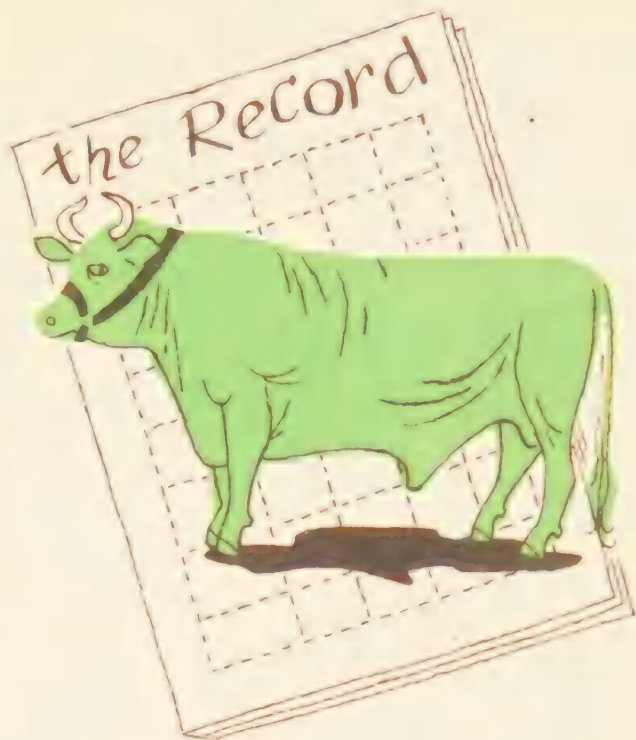
In this test, pioneered by the Danes, 20 first-calf daughters from each bull are fed in a testing barn, on identical rations, milked under identical management. Bulls are rated by how much milk and butterfat the 20 daughters produce.

How a "good" bull can be worth a million dollars more than an "average" bull to a community is graphically illustrated by Prof. Eskedal, Danish Livestock Laboratory. The two bulls will each sire 4,000 daughters. Based on testing records, the "good" bull's daughters will give 193 million lb. of milk during their lifetimes; the others, only 130 million. The difference of 63 million lb. in favor of the "good" bull is worth \$2½ million, figuring milk at \$4 per hundred. Even allowing 50% for additional feed eaten by high producers, farmers who use the "good" bull would earn over a million dollars more than the ones who used the "average" bull.

Says Prof. Eskedal, "Bull testing demonstrates we can't pick good bulls on looks alone. Too much emphasis has been put on blue-ribbon show bulls. And you can't always tell a bull's potential by observing his daughters on different farms under different management and feeding."

Ten years of testing reveal:

1. One bull may sire daughters with very high production—also some low producers.



2. Another will sire only high producers.

3. Another will sire consistently mediocre daughters.

Farmers want no part of No. 1 or No. 3.

Eskedal believes such a bull test in the U.S. would reveal similar weaknesses among our bulls, particularly of type No. 1.

POINT OF VIEW

A FRENCH VISITOR was looking over an elaborate \$500,000 pig-testing station in Denmark. Built by a farmer's co-op, it had individual pens for pigs—complete with radiant heating, individual feed platters, and toilets.

"Wonderful," exclaimed the Frenchman. "But in our country we're too poor to build such a testing station."

The Danish livestock expert shot back: "In Denmark, we're too poor NOT to build it."

This typifies Danish agriculture. Danish farmers boast they're the only ones in the world whose prices are not supported by government.

"We cannot afford the luxury of farming just half-well, or being 75% efficient," Farmer Paul Taft-Nielsen said.

CANADA IS ON THE MARCH

Land Opened in Alberta



THE CANADIAN GOVERNMENT has just thrown open a million acres for settlement in Alberta. There are 16 million acres now unoccupied which could be farmed—and will be in the years ahead. Good land, too—if 50 bushels of wheat per acre is any indication. Many farmers who settled here in the early 1930s are now independently wealthy.

Creeping Root Alfalfa

A NEW alfalfa variety with roots which creep below the surface and send up new stems has been developed in Canada.

Ordinary alfalfa won't stand grazing very well. Trampling by livestock injures the crowns. So when a creeping-rooted alfalfa was rediscovered at the Experiment Station in southern Saskatchewan, plant breeders went to work.

They crossed Ladak and Grimm, and have come up with a variety which stands up under grazing. Thinly seeded stands gradually improve—important in dry areas where a good stand is hard to get. Also, there seems to be less bloat, because of better mixing of legumes and grasses.

Rust-resistant Wheat

A NEW spring wheat variety resistant to stem rust 15B has been developed at the laboratory of Cereal Breeding in Winnipeg, Canada. It is called C.T. 186.

More Lean Meat

HOG MEN on Prince Edward Island, Canada, are doing something about their too-much-lard-not-enough-lean-meat problem. No boars or gilts can be sold for breeding stock unless they are from parent stock that's been tested and proved.

Two barrows and two gilts, pigs from a sow's first litter, are fed out in a government experimental station—then butchered, and the carcass is graded.

Goal for their Yorkshires: a long, lean carcass. Litters of 12 to 14 pigs are frequent, and hogs that will make 100 lb. of gain on 325 to 350 lb. of feed.

Cut Hay at Right Time—

OR YOU'LL lose much of its feeding value. Tests at McGill Univ., Quebec, by Prof. E. W. Crampton show how a few days' delay makes your clover hay mainly coarse stems.

Stage When Cut	Days Between Stages	Leaves and Fine Stems	Main Stems
Prebudding		75%	25%
Budding	5	51	49
Early bloom . . .	11	34	65
Full bloom	10	30	70
Heads brown . .	18	25	75

Rainmaking in Canada

FARMERS southwest of Saskatoon, Canada, have plunked down their dollars to "buy rain." They've put up \$5 for each 160 acres, and have hired a firm to increase rain.

Ground generators will send up billions of silver-iodide crystals, and each can become a raindrop if the right kind of clouds are there. Dry land farmers in the three Prairie Provinces are keeping a watchful eye on the experiment.

GERMAN COWS PRODUCE GAS TO RUN TRACTORS

MAKE your dairy herd produce gas as well as milk—enough gas to run your tractor, heat your house, and do the cooking. Pipe dream?

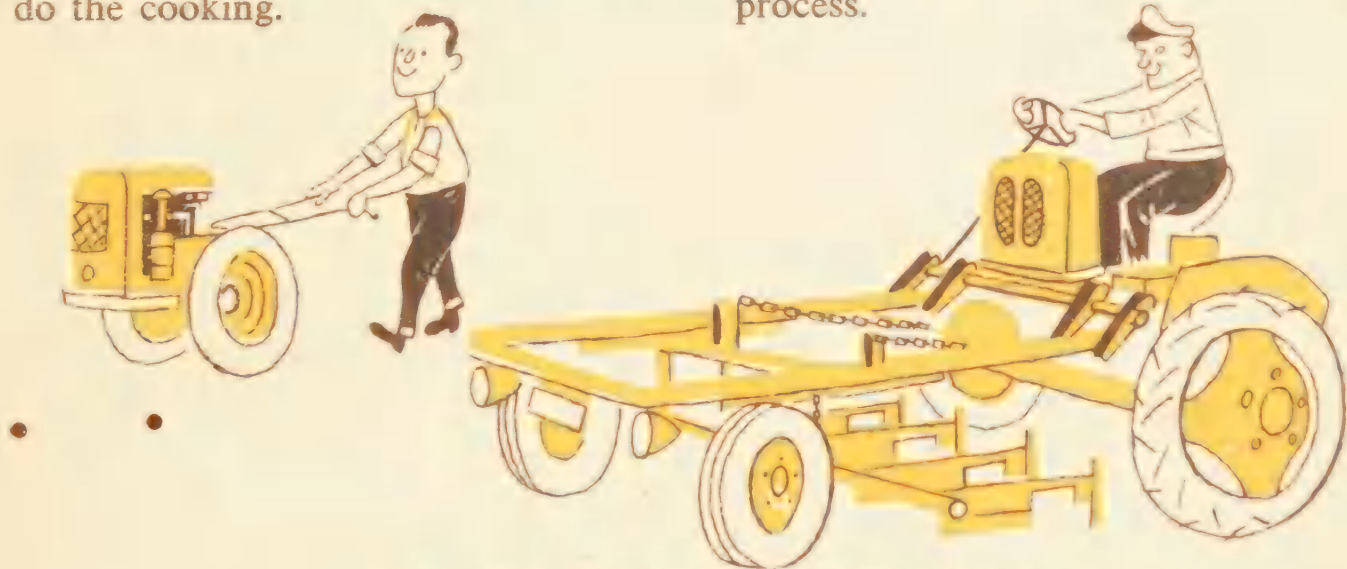
No, the editor of this book visited a German farmer who was doing it. The idea: Cow manure contains bacteria and chemicals which, when placed in a big tank of water, give off methane gas. But machinery is expensive: it must stir the manure and water, heat it to 80°F., catch the methane gas and compress it for use.

The editor visited a dairy farm near Braunschweig, Germany, where 100 cows were producing milk—and bio-gas enough to power their four tractors, totaling 120 hp.; to heat the 500-year-old castle-like dwelling; and to do the cooking.

This gas installation is expensive—about \$50,000 to take care of manure from 100 cows. But the owner believes he'll pay for it in 6 to 10 years, in fuel saved, plus the fact that he saves 50% more nitrogen in the manure, which is later spread on the fields . . . after it's all "gassed out."

There are several such installations in Germany and other nations where tractor fuel is expensive. Interested French scientists have developed a cheaper process, but one which is not so efficient.

"Bio-gas today is about like making molasses from wood. We know we can make it, but it's not profitable—yet" is the way Gordon Zimmerman, German farm editor, describes the process.



10-ACRE FARMERS MECHANIZE

GERMAN FARMERS have taken to tractors like ducks to water—despite fact that three-fourths of their farms are less than 25 acres, machinery is expensive, and gasoline sells for 70¢ a gallon. Here's how they've done it—and made it pay:

1. For farms of under 12 acres, farmers use two-wheeled 1- to 10-hp. garden tractors. These are not play-things. They have full lines of implements—they mow, plow, haul, cultivate, and do a better job than the oxen and horses used before them.

2. On farms bigger than 12 or 15 acres, they use four-wheeled tractors. German manufacturers are mak-

ing air-cooled diesel tractors of 10 hp. and up. Best argument for diesel: fuel costs only half as much as gas, and 20% less is used. "We figure if a farmer uses his tractor 200 to 300 hours a year, it pays to buy diesel over here," says Prof. Maeier, president, Volkenrode Research Institute.

3. Farmers can rent machinery from farmer-owned co-ops. The editor visited one co-op where a combine had cut 350 acres of grain in one year on 80 different farms. Said the co-op manager, "You must have good nerves for this business. . . . Every farmer wants the equipment at the same time."

Buried Grain: Farmers of India don't worry about scarcity of wheat storage facilities. They stack grain sacks in a mound, cover with chaff and straw, then pack with a layer of dirt. This ground granary repels worst monsoon rains.

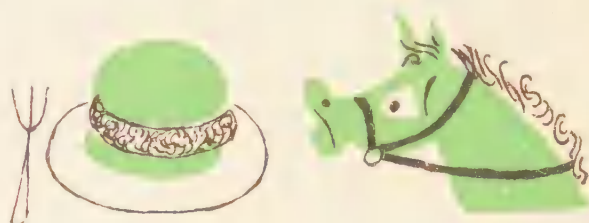
FARM NEWS HIGHLIGHTS

Corn Planted Thick: The Dutch plant 28,000 corn plants to an acre for grain—and 56,000 for corn silage, three times as much as in U.S. Their corn silage yields are as high as 40 tons per acre.

Husking Peg Factory: Dutch were enthusiastic over visit there of Elmer Carlson, Iowa hybrid grower and ex-champ corn husker. He showed them how to hand-husk with a hook—and now a factory makes husking hooks.

Pre-Sprouted Potatoes: Dutch get better yields by green-sprouting seed in shallow crates in glass houses, and by planting whole potatoes.

Double Cropping: Puerto Rico experiment station has shown farmers how to double crop returns by inter-cropping sugar cane with beans, cowpeas, and soybeans. This is applicable in other countries with orchards.



Percheron Steak: At a recent French auction, butchers bid \$200 for thoroughbred Percheron draft horses—for horseburger. French farmers stopped bidding at \$150; they prefer tractors.

Fertilizer Champ: Belgium uses the most fertilizer per acre in the world—equivalent of 500 lb. of 10-10-12 fertilizer for every tillable acre.

Surplus Wine: To help move surplus, Spain requires anyone ordering a restaurant meal to order wine too. In France wine surplus is made into alcohol for use in synthetic rubber.



Boosting Milk Sales: Germany is adding milk powder to bread—3% by weight. Farmer also contributes to a milk advertising fund 3¢ per 100 lb. of milk sold. Movie theater ads help.

Synthetic Rice: Japanese have developed an “extender” for their rice—a concoction of wheat flour, potato starch, and powdered natural rice, mixed with real rice when cooking.

Air-Lift Beef: Because many Australian ranches are remote from cities, beef is slaughtered on the ranch, flown in refrigerated planes to market.

Hormones at Work: Because pineapples ripen unevenly, Hawaiian growers spray them with hormones, and 8 months later the fruit is ripe. If there's pineapple glut at that time, they can spray with a different hormone and delay the ripening.

Custom Milker: Few German farmers with 6 or 8 cows have a milking machine. One enterprising German mounted a mechanical milking outfit on a truck, now milks 70 cows night and morning for 9 different farmers, and delivers it to the dairy. He charges \$1.50 a month per cow.

Fish Farming: In Thailand, farmers have built more than 10,000 private fish ponds with FAO technical help, and now “farm” fish as matter-of-factly as they do rice.



FROM 'ROUND THE WORLD

Perennial Wheat: Russian scientist Tsitsin has developed perennial wheat by crossing wheat with a weed. However, it is not perfect. Too much of it drops out after the first year; so it pays to replant every year.



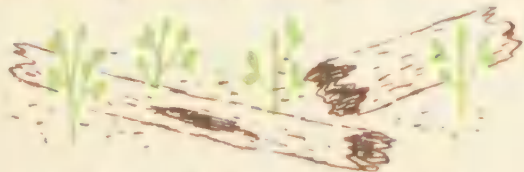
African Sorghums: Africa is a vast, untapped reservoir of sorghum breeding material which can give us higher-yielding, disease-resistant varieties, says O. J. Webster, USDA agronomist.

Potato Record? T. Symour, Ryhope, Australia claims the world's potato record. He grew 300 bu. on $\frac{1}{4}$ acre.

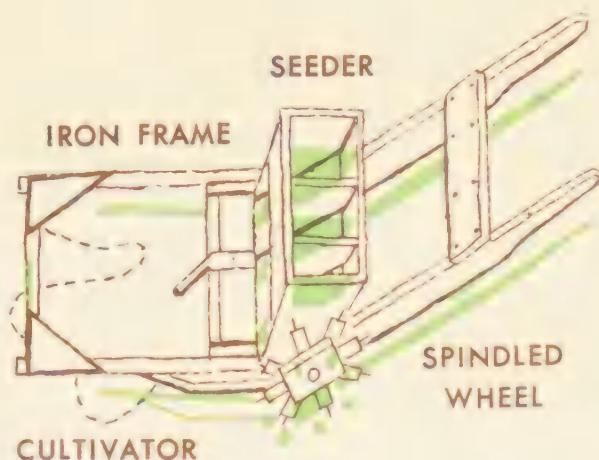
Eradicating Mastitis: Having whipped tuberculosis and brucellosis, Danes are now tackling some forms of mastitis which cause 50% of all mastitis losses. Scandinavians have pioneered animal disease control.

Tenant Gets Credit: When English tenants move, they get credit for unused portion of manure and fertilizer spread in the past.

Packed Soil, Better Yields: When Prof. Frese, Volkenrode Research Institute, in Germany, planted sugar beets and potatoes in the rut of the tractor wheel, he got 15% higher yields than when he planted them in loose soil.



Easy Timber Clearing: Malayan rubber planters now deaden big jungle trees with poison, clear out the underbrush, and plant rubber seedlings. Deadened trees soon fall over and rot, with very little damage to young seedlings. By the time young trees produce, old trees have rotted away. It's cheaper than clearing and burning.



The Gadget: Technical aid doesn't always mean big shiny tractors and billion-dollar dams. In Greece it's the "Gadget," a device created by American farm technicians. It will plant seeds, cut weeds, dig holes, and cultivate—can be built by village blacksmith for \$15—and will save Greek farmers an estimated 2½ million man-hours of labor next year.

Penned Pigs: Danes say the more you confine pigs, the faster and more efficiently they gain. One pig in a small pen will grow faster than two in a large pen. As a practical measure, Danes keep about 8 to 10 pigs in a small pen roughly 10 by 10 ft.

AVERAGE MILK
685 ENERGY UNITS
3.5% BUTTERFAT
3.3% PROTEIN
4.85% SUGAR
0.69% MINERALS



JERSEY MILK
880 ENERGY UNITS
5.3% BUTTERFAT
3.8% PROTEIN
5.0% SUGAR
0.7% MINERALS

Solids—NOT Fat: All the fuss about value of solids-not-fat—generally interpreted as a point in favor of Holsteins and Brown Swiss—has caused Jersey dairymen in New Zealand to come up fighting. They say, "It's an established scientific fact that milk with higher butterfat test also contains a higher percentage of the other essential ingredients. Research has demonstrated that 1% increase in butterfat test means 20% increase in food value of milk." And they submit the above figures to prove it.

BULLS, BUTTER, AND BETTER FARMING

ANYONE who has milked by hand knows that some cows milk easily and some just won't give down their milk.

It's still true. Some cows can be milked in 3 minutes by machine. Some take 6 or even 10 minutes, and scientists now know why. The stimulus of milking causes a "let-down" hormone to be released from a gland near the cow's brain. It races through the blood to the udder, where it opens up the milk-secretion glands—and pressure is built up in the udder.

On that basis, C. W. Turner, Univ. of Missouri, world authority on milk secretion, suggested the "rapid milking" technique. Get all the milk out in a hurry while the cow is still in the mood. For the hormone let-down action soon declines.

New Zealand research by W. G. Whittlestone now reveals that milking rate is a highly heritable character that can be passed down by the bull. In one herd tested, three daughters and a granddaughter of a certain bull are the four slowest milkers. The owner wants no more offspring from that bull, because:

1. A dairyman's income depends in part on how many cows he can milk. Obviously he can handle more 3-minute milkers than 6-minute ones.

2. The fast milker is usually a *complete* milker, and the dairyman

wants to be sure to get the last drop of rich milk.

So now we have a new requirement of dairy bulls: Do they sire fast-milking daughters?

Ration Pasture: New Zealanders get big yields of butterfat per acre by rationing pasture. With electric fences to dole out just a little new grass at a time, the cattle munch their way shoulder to shoulder across the field. Result: many farmers get 300 lb. of butterfat per acre. Massey College gets 400 lb. and expects to reach 500 lb. in the next few years. Such management practically eliminates bloat.

Hot Climate Cows: How to get a cow that performs equally well in hot and temperate climates? New Zealand researchers are trying to find the answer in the Fiji Islands.

Six sets of identical twins were divided. Half were fed and milked in New Zealand, the others in Fiji. Identical-quality fodder was shipped in from New Zealand to Fiji. Two cows in Fiji had as high a production as their sisters in New Zealand—and it was relatively high. The other four Fiji twins fell down sadly compared with their New Zealand sisters. Scientists believe this shows a dairy cow *can* be selected for heat tolerances and will produce well in the hot climates.



Planes Do Farm Chores

BECAUSE of their rough, hilly land, New Zealand farmers use planes to spread fertilizer, to drop fencing in rough country, and to spread bait to kill off rabbits. They're finding also the

values of trace elements. As little as 2½ oz. of molybdenum per acre doubled yields on cropped-out and eroded soils. It was spread by plane, with superphosphate.

ODD FARM FACTS

World's biggest earthworms—"We have 'em," say Australians. Giant crawlers average 4 to 5 ft. long, and some are an inch thick and weigh a pound or more.

Wow! If only the organic gardeners could put them to work!

In Central America, farmers say their cows won't give down milk unless you **tie the calf to the cow's front legs**. (They're careful to tie it short enough so the calf can't compete with the milker.)

Farmers on Islands of Jersey and Guernsey get their fertilizer and soil conditioner free: seaweed washed up from the ocean, called **Father Neptune's Compost**. A ton contains 20 lb. potash, 10 lb. nitrogen, 10 lb. phosphoric acid, 50 lb. salt, and 400 lb. organic matter.

Yogurt, a Johnny-come-lately to the U.S., has been popular for centuries in Turkey. It's made there of **ewe's milk**.

• **Imported honeybees**, not native to the Americas, are being attacked by wild bees, report Bolivian researchers.

Millions of sea birds produce high-value fertilizer on islands off the coast of Peru. Islands are "farmed" for guano; 250,000 tons are produced annually.

In Colombia, folks want to buy **animal-warm milk**—so they can be sure it's fresh. Farmers have trouble selling "last night's milk."

Pakistan has **cow-pulling contests**. Two animals are hitched together to a heavily loaded sled. They pull until one gives way.

Two hundred years ago, Napoleon offered a big cash reward for anyone who could find a way of **preserving foods** so he could supply his troops more easily. Nicholas Appert, a Frenchman, won the prize by inventing the **process of canning**.



South African Develops Pre-digested Feeds

A SOUTH AFRICAN farmer has developed a yeast process by which dried cornstalks have been converted into feed that put rapid gains on beef and increased milk yield in dairy cows.

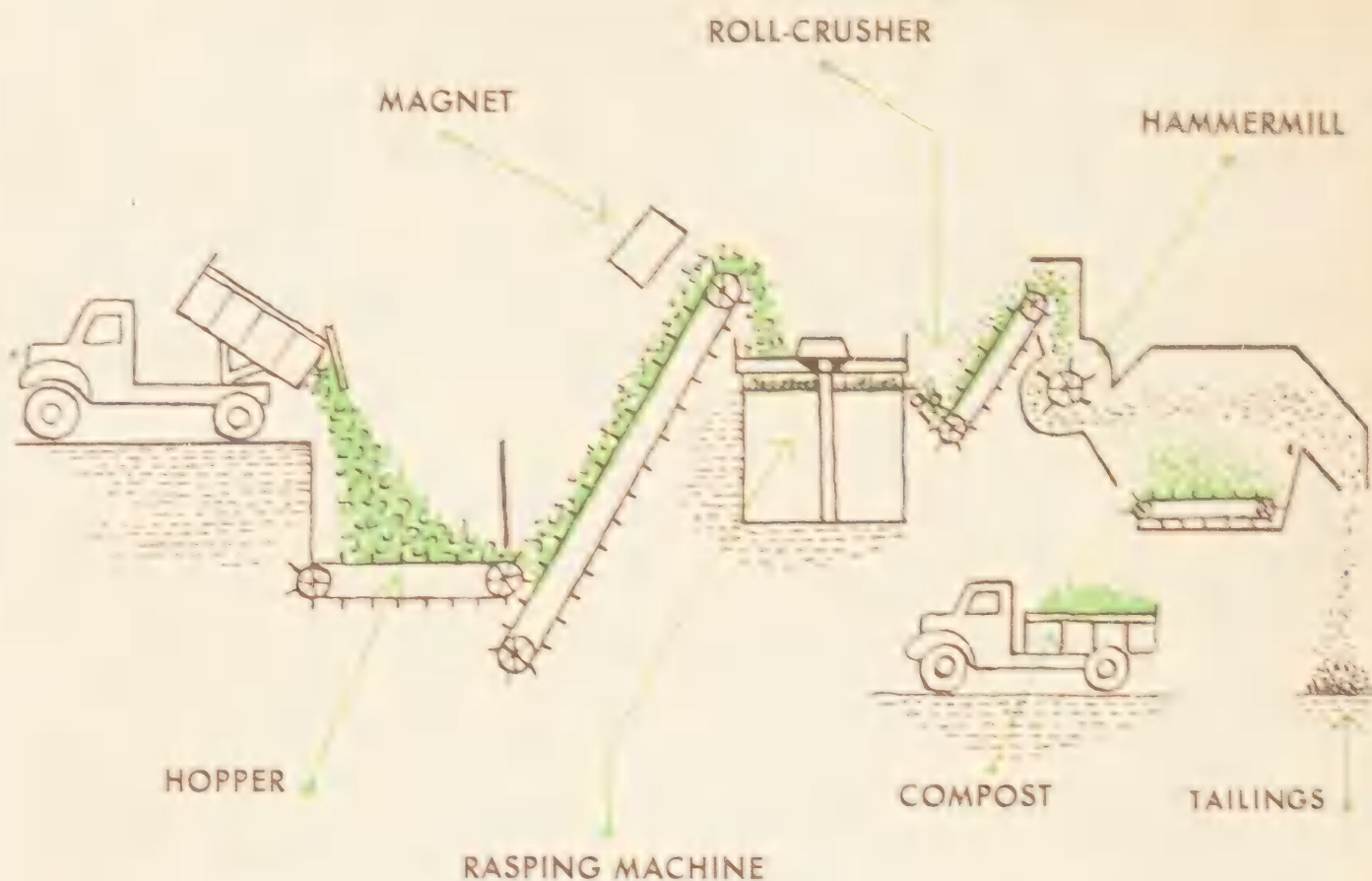
It's so good that Ernest A. Ritter, who developed it, transformed a 30-year-old thatched roof into palatable feed more attractive to cattle, he says, than luscious green corn silage.

The process involves making a bubbling brew of yeast, molasses and water, dipping the stalks into it for a couple of minutes—and then stacking it like silage. It can be fed soon after treatment. According to Mr. Ritter, the yeast solution sort of pre-digests the cellulose, provides a source of vitamins, and stimulates bacterial action in the cow's rumen.



Cows Have It Soft!

SWEDISH farmers are experimenting with rubber-floored cow stanchions. No straw or other bedding is required. It's easy to hose the stanchions off and keep them clean. And Bossy finds them just as soft—so say the Swedes.



GARBAGE IS GOLDEN IN HOLLAND

CITY DUMPS in Holland are on the way out. Instead ashes, garbage, and waste paper are processed, turned into compost, and sold to farmers for \$1 to \$2.50 a ton.

The Thrifty Dutch, who have made more out of less than any other people in the world, pioneered the process detailed in the above diagram.

Everything from ashes to banana peels to old shoes is dumped into a huge hopper. An electromagnet takes out iron scrap. Huge, revolving metal arms sieve the refuse, which is then run through big metal rollers and ground in a hammermill. The coarsely ground stuff is then moistened and piled in big piles.

Bacteria—700 million per thimbleful—start working, and the compost heats up to 125° immediately. The ground garbage decomposes completely in 6 months. But many farmers buy undecomposed garbage to heat their hot beds. Horse manure is not so plentiful any more.

Here's the "economics": The city pays less for disposal of its refuse.

The plant makes 5% profit on investment. Farmers are glad to pay \$1 to \$2.50 a ton for compost (which in the U.S. sells for \$40). And Holland, which needs every pound of organic matter she can scrape up, benefits through increased production.

Compost contains all of the trace minerals—and adds humus to the soil. It has increased yields enormously. The Dutch experience has aroused wide interest, and Germany and Israel have already bought processing plants.

"Biggest in the World!"

WHEN W. A. G. Westrate read in an American magazine that California had the "world's biggest compost plant," he flew the Atlantic to see the "City of Golden Garbage." What he saw was a plant less than one-tenth the size of a plant he had helped build for the Dutch government. But all the disappointed Dutchman said to the proud Californian who showed him the plant was: "Quite interesting." And he flew back home.

GIVE US THOSE WIDE OPEN SPACES

"Go WEST, young man!" is advice given Australian youth today. There are millions of acres of undeveloped land, for Australia is as big as the United States—with a population the size of Illinois'.

Seven years ago E. F. Smart bought 26,000 acres of sandy, scrubby wasteland for 56¢ an acre. His neighbors thought he was crazy. But with modern machinery he cleared the scrubby wasteland, added superphosphate, and seeded lupin, a legume that grows 4 to 5 ft. high. And he netted \$45 an acre the first year.

Today he has blooming farmland, rich in wheat and pasture, at Erreguella Springs Station, Mingenew, W.A.

The sandy land can be built up with sheep and lupin. The land will carry up to 5 sheep per acre, and by actual tests they drop 1,500 lb. of manure per acre on the land. Smart's fifth-year lupin made a weight of 36.4 tons per acre.

Smart's advice to young farmers with small capital: "Go to sharefarming. Like a colt at a yearling sale you are an unknown quantity. No one knows your worth until you've proved it. This you must do. Sharefarming gives you this opportunity." He figures young men can get started for as little as \$2,000 in Western Australia.

Trouble, Trouble: Pity the Australian farmer! Rabbits do nearly a billion dollars' damage a year to pastures, and even injection with dread myxomatosis disease has left some immune ones alive—and they're now breeding super-bunnies.

Wild dogs, called dingos, are being fenced out of Queensland with a 5,000-mile-long fence. They killed half a million sheep in Queensland alone last year.

Emus, 100-lb. ostrich-like birds that don't fly, devastate crops such as wheat. The army was called out to use machine guns on them several years ago, but the birds ran too fast,

and some machine-gun bullets ricocheted off the well-feathered birds. The army gave up.

... Not to mention **wild donkeys**, which roam in gangs of 50 or more.

Australia's problem: More pests than people.



Not Pretty But . . . Australian Merinos are world-famous for wool. The one above sold for 5,000 guineas—\$14,700. Pretty? Well, no, not exactly, but the Australian *Pastoral Review* says: "The greatest of sires in the Merino sheep world are very rarely beautiful in form. Do not turn down a sire lightly because he may appear ugly, with narrow girth, flat ribs, or shelly, badly turned horns. He will often produce beautiful specimens in his progeny."

"You don't want a ram with wool too beautiful or effeminate—it must be bold and masculine!"

Cattle-sheep feuds are giving away to good management—all over the world. In Australia, sheep men are running from 3 to 10 cattle per 100 sheep, to take care of the coarser feed or taller grasses.

Australian research has shown that **sheep do not need a salt lick**. Dr. Geof Fethers says: "Money is wasted buying salt in the belief that because sheep like it they must need it. Money would be far better spent on superphosphate."



AERIAL MAPS HELP NATIONAL DEVELOPMENT

THE WORLD'S agricultural and mineral resources will be discovered and developed faster as a result of research being done by Donald Belcher, Ithaca, N. Y.

He has developed the reading and interpretation of aerial maps to such a fine point that:

- He has located underground water supplies for an Arizona rancher, and told him where to drill irrigation wells.
- He has located drilling sites for water in Iran.
- He has made soil maps of vast regions in one-thirtieth the time it would have taken to do such surveys from the ground.
- He has helped the government of Burma size up its timber resources far more accurately than ground crews could have done it.
- He has helped the government of Jordan locate irrigation canals.
- He has located a dam site in Canada in a favorable spot, and also told them where they could find gravel and other construction materials.
- And right now he is locating a new capital for Brazil—all from the interpretation of aerial maps.

"You can see things from the air that are not visible from the ground," says Mr. Belcher.

Besides doing research and teaching at Cornell Univ., he runs his world-wide consultation service, with a highly trained staff ready to go at any moment literally to the ends of the earth.

He predicts that we'll be using aerial maps far more in the future to locate and develop soil, water, timber, and mineral resources.

Colleges Adopt Countries

Many of our land grant colleges have "adopted" foreign countries. For example: Univ. of Illinois has "adopted" Allahabad Agricultural Institute in India and sent their economists, agronomists, and home ec specialists to train Indians. Cornell Univ. is exchanging key personnel with Univ. of the Philippines. Michigan State is cooperating closely with Colombia, South America.

FARM STORY IN DRAMA, SONG, AND RHYME

FARM SCIENCE marches on! And even though they cannot read, and have no radios to listen to, farm folks around the world are still getting the story of better farming and better living.

In Libya, a professional storyteller, for a small fee, will spin a tale of better farming to people gathered in the coffee houses.

In the Caribbean areas, a calypso singer will translate scientific know-how into a swiny song—and rhyme it at the same time.

In Burma, a native dance interprets the triumph of the hero who follows good scientific practices over the villain who refuses to listen to the farm adviser.

(Personal note to reader: We can't sing, dance, or make rhymes, so in this Almanac we must rely on the modern tools of publishing—words, color, typography, and artists' drawings—to bring you interesting yet useful farm information. How're we doing?).

HE COULD TEACH US A FEW THINGS!

REX PATERSON, whom the editor visited on his farms in Hampshire, England, has worked out one of the most profitable systems of dairying ever seen. Here are the highlights:

1. One man feeds, cares for, and milks about 40 cows.

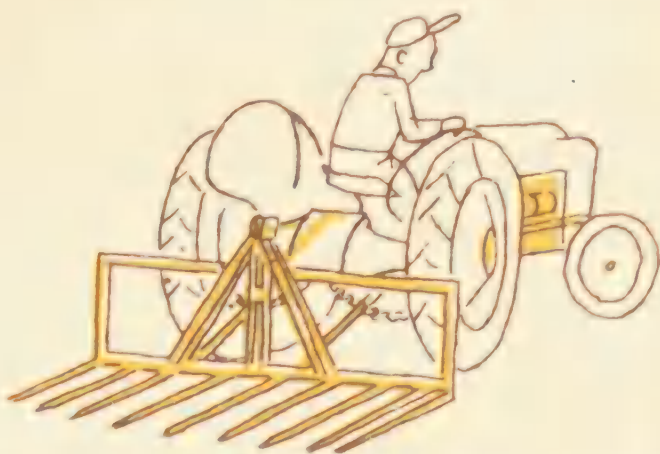
2. Cows get only pasture in summer, only long grass silage in winter—no concentrates.

3. Cows are in the open with no shelter—although it gets down to zero. Cows have calves in open; silage is fed on the snow. Milking is done in milk bails—milk parlors patterned on the New Zealand walk-through type.

4. Long grass silage is made with absolute minimum of labor and machinery. Grass is cut with a mower, picked up in the swath with tractor-mounted buck rake invented by Paterson, and quickly dumped in trench silo or on above-ground stack.

5. His native cattle are crossed with high-producing Jersey bulls. They give roughly 6,000 lb. per cow of 5% milk.

6. Paterson feels that exceptionally high yielding cows may not be most efficient or profitable. He thinks *pounds of milk per acre* vastly more important than pounds per cow. His goal: Cows that give 6,000 to 7,000 lb. of milk a year, of 5% milk—and do it on 1½ acres per cow for total feed.



Shorthorn-Angus Cross

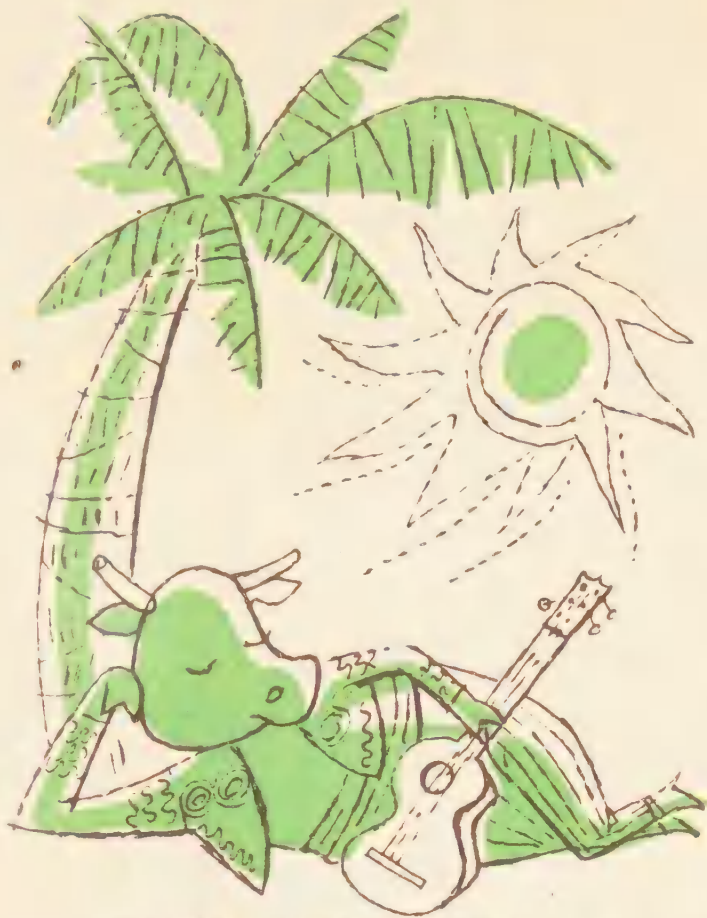
Frank Hood, a leading Australian breeder is crossing Shorthorns with Angus. He hopes to evolve a type possessing the early maturity of the Aberdeen-Angus and the scale and conformation of the Shorthorn.

He recently bought a Red Angus bull for breeding, a true Angus type except for the deep red color.

MORE MILK

BECAUSE most of world's beef is a by-product from dairy animals, Dr. J. Hammond, world-famous English physiologist, has evolved this compromise to get more milk—but better beef:

If a farmer has 30 milking cows, he should breed his 20 best cows by artificial insemination to bulls that will give him 10 high-producing heifers for herd replacement. Breed the 10 lowest producers to a Hereford beef bull. The Hereford-Friesian makes a rapid-growing animal which can be fed out into good beef.



LACKADAISICAL BULLS!

DAIRY BULLS get lackadaisical in the land of perpetual summer near Rio de Janeiro. So at the Universade Rural they've built air-conditioned barns to keep the bulls feeling . . . er . . . uh . . . active. Reports the Brazilian herdsman: "Now there's no decrease in fertility, whereas low fertility and great discomfort were experienced before."

DANES GET MOST

DANISH FARMERS get the biggest slice of the consumer's dollar of any country in the world—an estimated 80%. One reason: farmer-owned co-ops handle most of the processing—and are now entering into handling of farm exports.

Swiss farmers get 70% of the consumer's dollar; German farmers, 50%; U.S. farmers, 44%.

Of course, figures don't tell the whole story. American housewives can get ready-made pancake mix or chicken legs ready to fry—with the necks missing. And yes—even pre-cooked items such as brown 'n serve rolls.

RUSSIAN WONDERS

RUSSIAN FARM experimenters are shooting the works to grow more food. Some of these things the editor of this book saw, others he was told about, during his post-war visit to Russia, where the American hero is Luther Burbank:

Russian bees are fed quinine and other medicinal preparations, so they'll turn out medicinal honey. . . . Farmers are growing sugar beets and tobacco in Siberia, north of the Arctic Circle. . . . They're advocating a lemon tree for every home—grown in a pot 16 in. across—which produces 100 lemons a year.

To push the citrus belt northward, Russian experimenters have dwarfed grapefruit trees so they'll winter under the snow. They're working on a strawberry plant whose berries all ripen at once, making "once-over" picking possible. . . . They're trying to grow colored cotton, in shades of green, blue, and yellow, so it won't have to be dyed.

They have a pear tree which they say gives two crops a year. . . . They're grafting tomatoes on pepper trees—string beans and peas on acacia bushes in hopes of developing tomato trees and pea bushes. . . . They're working on serums to make sheep have twins and triplets. A good trick, Comrades, if you can do it!



Answer Man

Nearly 1,000 visitors from abroad called at the U.S. Dept. of Agriculture for information last year—and this does not include any U.S. government-financed projects.

LET'S HAVE A WORLD ROUNDUP

FARMERS of the world have benefited greatly by exchange of livestock, plants, and agricultural methods. Otherwise, the U.S. farmer would have no soybeans, alfalfa, or cattle on his farm today.

A further roundup could help us all. Man cultivates about 250 different crops for food and fiber. But there are 180,000 different plant species. And plant hunters are scouring the world for potentially useful ones.

In the past we've imported most of our beef and dairy cattle and sheep from Great Britain and Western Europe. Although quarantine regulations have complicated this exchange, we're now broadening this search, too. Following are three examples of how a plant and livestock roundup has been and will be beneficial.



Landrace

ONE SHIPMENT of Landrace hogs from Denmark in 1934 became the foundation of our Minnesota No. 1, No. 2, and No. 3 hogs, developed by Dr. L. W. Winter. This year C. C. Major and Robert Moore, Noblesville, Ind., imported some fresh Landrace stock from Norway—the first to come to this country since 1934.

Norwegian livestock breeders follow rigid progeny testing which results in hogs that give the lean meat the housewife wants—and hogs that gain faster on less feed.

This importation is expected to strengthen our Landrace breeding because, as a Danish breeder says, "the Landrace hogs you got from us in 1934 are old-fashioned '34 models. We've got lots better today."



Red Sindhi

THE Red Sindhi, which comes from far-off Pakistan, offers hope for "a hot-weather dairy animal."

This big, hump-backed cousin to the Brahman has been crossed with Jersey cows at Ag Research Center, Beltsville, Md. The resulting animals have much more heat tolerance than the Jerseys, but much developmental work remains to be done.

At Conner Prairie Farms, Noblesville, Ind., Tillman Bubenzer is going one step further. He's breeding a Red Sindhi-Jersey bull to Brown Swiss heifers. "We want to get the heat and disease resistance of the Sindhi, the high fat content of the Jerseys, and the milk production of the Brown Swiss." A darned good trick, Tillman, if you can do it.

Africa—Untapped Source of Sorghum

AFRICA offers a vast, untapped reservoir of sorghum breeding material, says O. J. Webster, USDA agronomist. He says he's found varieties in the Sudan with long, papery glumes which offer seed protection from birds. Sorghum in the Gold Coast does not open glumes at blooming, and may offer value in breeding for insect resistance.

CANADIAN CROPS MAY NEED "JUST A TRACE"

YOUR CROPS not doing as well as they should? Get suspicious of trace-element shortages, say Canadian soil researchers.

Celery and lettuce yields jumped when magnesium sulphate was applied at the St. Anne de la Pocatière Experiment Station, Quebec. In the Harrow region of Ontario, manganese deficiency in soybeans was cleared up in 5 days by spraying with 2% solution of manganese sulphate.

Alfalfa wouldn't grow on good soil at the Lennoxville Experimental Station—until boron was added in

form of borax. The British Columbia apple industry has boosted its crop by a million boxes just by adding boron.

A trace of molybdenum cleared up "whiptail," a disease in cauliflower around Charlottetown, P.E.I. At the Fredericton, N.B., Station, molybdenum is being used as an aid in growing clover in potato areas.

One warning: Scientists say that applying minor elements just to be safe is NOT very safe. All you need is just a trace. If you get too much, you may have trouble. Better get a good diagnosis first.



DWARFISM AND SHORT NOSES

JUDGES HAVE been pinning purple ribbons on small, compact steers, and that has brought about the spread of dwarfism, believes Dr. Howard T. Fredeen, Dominion Experimental Farm, Lacombe, Alberta.

To please the judges, breeders have tried to achieve this type, and as a result an increasing number of cattle have failed to develop normally.

The same thing happened when judges favored "short-nosed pigs." Breeders went overboard for short-nosed pigs.

But pigs with short noses got more rhinitis and other ailments than those with long noses.

Moral: A hog's nose is his own business. Breeders please keep theirs out.

TRANSATLANTIC BREEDING

AN ONTARIO bull can sire all the calves in a herd of Holsteins near Norwich, England—without ever crossing the Atlantic.

The answer is frozen semen. A shipment frozen to 79° below zero was made by Ontario Agricultural College at Guelph to the Milk Marketing Board in England.

It will provide 225 services—enough to breed all of James Alston's Holstein cows during the year.

STAY OFF WET GROUND

STAY OFF wet ground with tractors!

Tests by E. F. Belton, Woodslee Experimental Station, show why:

In dry weather, a tractor with rear wheel weight of 2,000 lb. did no damage, but on wet corn soil the air pore space was reduced by 31%, and water percolation from 2.4 to 0.7 in. per hour. On wet blue-grass sod, air pore space was reduced by 20%, and water percolation dropped from 39.9 to 12.9 in. per hour.

KNOW-HOW AND SHOW-HOW ABROAD

OUR BEST ambassadors abroad today are farm scientists in work pants. They're working in dusty Indian villages, in the rain-deluged bamboo land of the Philippines, in revolution-hot Colombia, in the deserts, plains, and jungles of the world.

They're paid by the U.S. government, by Land Grant colleges, by FAO (Food and Agricultural Organization of the United Nations), or American business and religious organizations.

But their tools are the same: *farm know-how* and *farm show-how*, plus a friendly approach and a desire to help other nations help themselves. In turn, we're making real friends. As one proud Pakistani said, "We like it

when you give yourselves, much better than when you give just your money."

Such a worker is Horace Holmes, from Tennessee, ex-county agent, who went into the little village of Mahe-wah in India. There he faced age-old prejudices of caste and religion, age-old problems of poverty, illiteracy, and disease. But he took off his coat and went to work. In one year, the farmers who followed Horace Holmes found wheat yield could be increased from 13 to as high as 63 bu. per acre, and potatoes from 119 to 235 bu. Today Holmes's work in this little village is causing ripples of interest all over India. And many other Americans are following Horace Holmes, carrying our know-how to the world.

FAO A FAILURE?



THE Food and Agricultural Organization of the United Nations was formed in the dark days of 1943 by 44 nations whose representatives met in Virginia to discuss hunger—and what to do about it. The war still raged; the tide of hunger was steadily rising. More than half of mankind lived in the shadow of famine, while fears of surplus hung over heads of those countries with land, men, and means to raise food.

Today, 11 years later, half the people are still hungry. Has FAO been a failure?

Ask an Italian who now grows 125 bu. of corn—thanks to U.S. hybrid corn and FAO teamwork. Ask an Arab who's seen planes and men

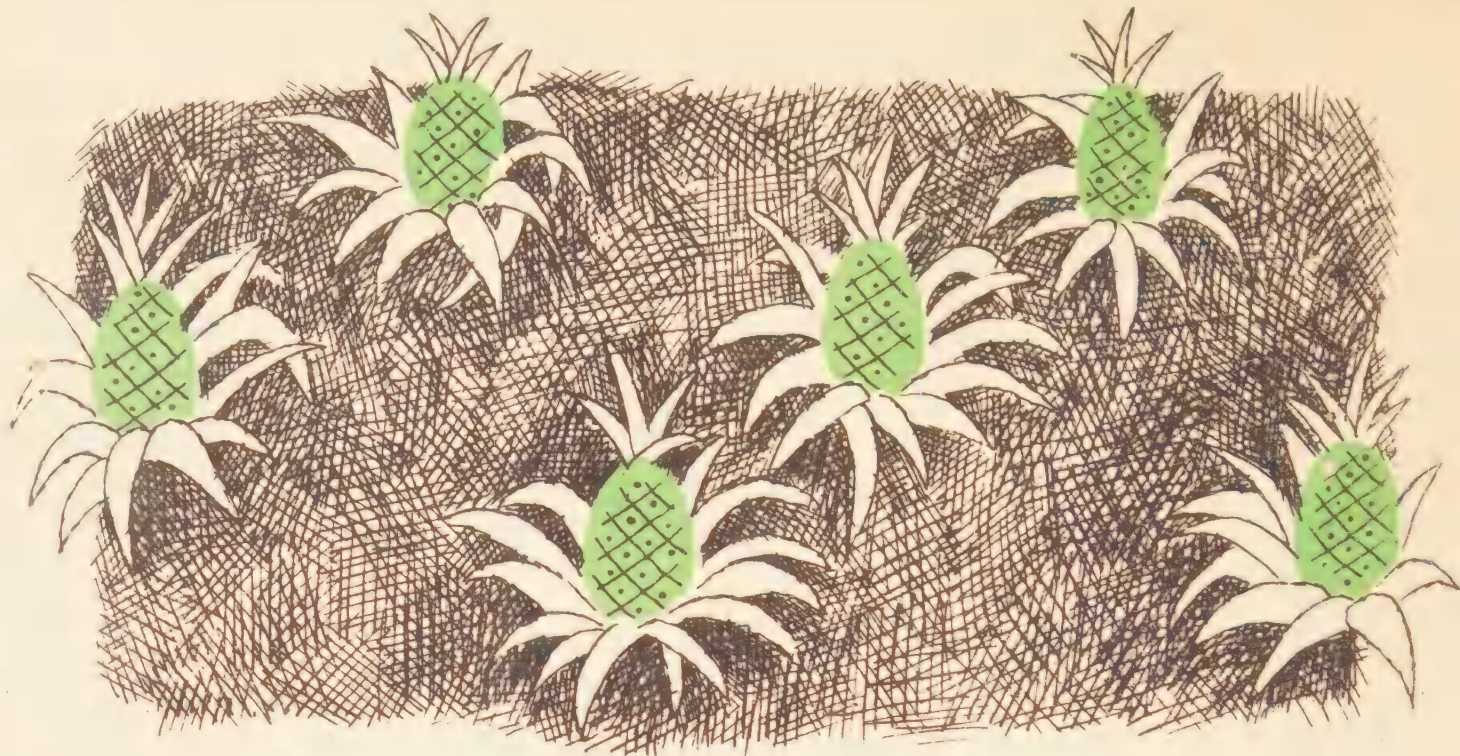
fight swarms of locusts which sweep in from another country to devastate his crops. (Locusts do not respect national borders.)

Ask half the people of the world who depend on rice as their main food—who eagerly watch efforts of FAO rice experts of a dozen countries who are now pooling their skills to develop higher-yielding hybrid rice.

To those who have expected too much, too fast, FAO may be considered a failure. To much of the world's population, it represents the hope of more food and a better living.

Who's Developed?

"I NEVER USE the phrase '*underdeveloped country*' in Africa," says a returned missionary. "Because the African says to us Western Christians: 'You have fought two world wars in 30 years. Is that what being "*developed*" means?'"



TROPICAL TIP: KEEP SOIL COVERED

TROPICAL SOILS harden and lose their productivity when exposed to the sun.

"We have an area in the Hawaiian Islands where the soil has lost 90% of its nutrient storage capacity," say G. Donald Sherman and Hoshinori Kanehiro, Univ. of Hawaii.

"When soils are cleared, they quickly dehydrate if not covered. Dehydration makes it hard for soil to hold nutrients and release them," they say.

Their solution: mulches or cover crops. White mulch paper greatly increased growth of temperate zone vegetables such as head lettuce, carrots, and beets. Carrot yields were boosted

400% by use of boards as soil cover. Bagasse (sugar-cane waste) used as mulch makes it possible to grow vegetables normally adapted to cooler climates.

Mulch conserves soil moisture, reduces soil temperature, improves soil structure.

In orchards or citrus groves, cover crops that grow rapidly to cover the ground serve the same purpose. A good one is Creeping Indigo, which vines in all directions. It produces a fine leaf mulch and also adds nitrogen. *Warning:* This plant is toxic to livestock.

TURN UP NOSE AT GOATS?

GOATS GET blamed for a lot of things—unfairly! In tests at Tanganyika, Africa, one pasture was grazed by cattle, another by goats. At the end of 4 years, the cattle plot had grown up to a brush which harbored the dread tsetse fly, the grass was poor, the surface soil eroded. But on the goat plot there was no brush, and the grass was as good as, or better than, at the start of the test.

Moral: Cattlemen should not turn up their noses at sheep and goats. Many ranges will produce more profit when cattle and sheep graze together.

SAND-PILE CROPS

IN PERU, a 200-acre farm of white sea sand has been made to bloom green with alfalfa. All it takes is irrigation, says Dr. Pedro Venturo, of Lima.

He produced about 15 tons of green forage per acre on sand that was clean enough to go in a child's backyard sandbox.

"One-fourth of the earth's surface is covered by deserts now unsuitable for cultivation. But the increasing world population impels us to consider ways and means of utilizing this soil," says Dr. Venturo.

THE AMERICAS TEAM UP

THE 21 American nations are reaping rich harvests from agricultural cooperation:

Improved sugar-cane varieties from Cuba have jumped El Salvador's sugar output by 20%. . . . Colombia has sent semen of their Romo Sinuano cattle to North Carolina to improve the heat resistance of cattle. . . .

Transplanting of improved rice varieties from Louisiana to El Salvador has increased yields there by 25%. . . . Cuban yellow corn took a hop-skip-and-jump from Cuba to Peru to Bolivia and has doubled their corn yields from 35 to 70 bu. per acre. . . . And Indian farmers in Bolivia are convinced that the Servicio Agrícola Interamericano, which engineered the jump, is powerful medicine indeed.

GROWING RUBBER

BECAUSE OF its strategic importance, scientists are working along three lines to grow rubber in the Americas:

1. **Natural rubber**, a native of the Brazilian jungles, is produced mostly in southeast Asia. But it is now growing—and under study by scientists—in these 11 countries: Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Guatemala, Haiti, Honduras, Mexico, Panama, and Peru. How to reduce disease, get higher production, and reduce labor costs are problems now under concerted attack.

2. **Guayule**, a shrub-like plant from Mexico, produces rubber. It has been grown in southwestern U.S.

3. **Koksahghyz**, Russian dandelion, will yield a rubber crop in 9 months. It will grow in many countries.



HOT-WEATHER COW

WANTED: A hot-weather cow that will stand the heat of the tropics, get along with the insects—and give lots of milk and beef.

That's the objective of Jorge De Alba, Inter-American Institute of Agriculture, Turrialba, Costa Rica.

In an animal climatic lab, donated by King Ranch of Texas, he studies reactions of cattle to varying temperature, humidity, and radiation.

On the beef side, he's working with Brahmans, Brangus, and Santa Gertrudis; on the dairy side, with Jerseys and a native *criollo* cattle from Nic-

aragua and Honduras.

Other countries are working on cattle combinations. Honduras likes Red Poll cross with native cattle. In Panama, Brown Swiss is preferred.

Brazil has had good results crossing Zebus with native cattle. The Jamaica-Hope breed, resulting from the Zebu-Jersey cross, has given yields as high as 13,063 lb. of 4.6% milk on twice-a-day milking.

In a study of the five typically American dairy breeds in Puerto Rico, Jerseys were best adapted to the climate—Holsteins the least.

WHO HAS THE MOST FARM LAND?

THE TABLE below gives statistics on cultivated land in the 15 countries that have 75.3% of the world's cultivated acres.

No wonder we're well fed in the U.S. We have 18% of the world's cultivated land—and only 6% of the population. We have nearly 3 acres per person; the world average is only 1 acre.

Only 8% of the land on earth is cultivated. The big reason is that

four-fifths of the earth is too hot or too cold, too dry or too wet, or covered with deserts, mountains, and jungles.

However, experts predict we'll eventually farm 20% of the earth's surface. Most of this additional land now lies idle in Africa and South America. So if you're looking for new frontiers, get yourself a sun helmet and "Go south, young man. Go south!"



Country	Millions of Acres Cultivated	Percentage of Total Land Cultivated	Acres of Cultivated Land per Person	Percentage of World's Cultivated Land
U. S.	454	23.5	2.9	18.2
Soviet Union	423	7.6	2.04	16.2
India	305	38.0	0.85	12.2
China	180	12.4	0.39	7.2
Canada	89	3.6	6.46	3.6
Argentina	74	10.7	4.31	2.9
France	52	38.5	1.24	2.1
Pakistan	51	2.3	0.7	2.0
Spain	47	37.8	1.67	1.9
Brazil	46	2.2	0.9	1.8
Poland	41	52.8	0.99	1.6
Iran	41	10.4	2.2	1.6
Italy	38	51.6	0.8	1.5
Germany	34	37.0	0.49	1.4
Australia	32	1.7	3.9	1.3
	1,913			76.3



WHAT'S NEW IN CROPS AND SOILS

SEEDLESS FRUIT? Dwarf corn? Plants immune to disease?

Not so wild a dream! For this is the atomic age, and the plant breeder has a new tool. *Hot rays blasting out of radioactive cobalt have brought major genetic changes in the makeup of crops, fruits, and flowers.*

Once in a billion cases nature makes a sudden change in the design of a living thing, and we get what scientists call a mutation or "sport." The Red Delicious Apple, found growing in a farmyard was a natural mutation. So was pink dogwood, which came from a white tree with one pink branch. All our pink dogwood since has come from cuttings from that lone branch.

•But with atomic tools, scientists can cause hundreds of times more mutations than appear in nature. They're exposing 4,000 different plants daily to atomic radiation on the "hot farm" of Brookhaven National Laboratory, Long Island, N. Y. Of course, more often than not these new forms are worthless freaks; only 1 in 1,000 seems useful. But that one may be worth thousands of experiments.

At Brookhaven plants, trees, flowers, shrubs, and vegetables are grown in a circular row around a small blockhouse where the potent radioactive cobalt rests in a lead shield. And even scientists are dazzled at what might come forth after the atomic rays strike.

Peaches with better flavor . . . Grapes of different color . . . Seedless vegetables . . . A sturdy half-size corn plant that grows normal-size ears . . . Maples with more sugar.

The atomic age—what fascinating things it promises those who work with soil and growing things! What hope it offers a hungry world!

WE'RE LEARNING TO USE SOIL CONDITIONERS



SOIL CONDITIONERS have a dozen good points that make a farmer smile, and one that makes him frown—they've been costing only a few cents less than gold dust.

But trust farmers and scientists to find out how to use them profitably. For \$5 an acre conditioners help

GROW 50-BUSHEL SOYBEANS

A FEW SOYBEAN growers hit 50 bu. regularly. Here's how they do it:

1. *Plant improved varieties* developed in the last few years.

2. *Plant early*—May 1 in the South, May 10 to 25 farther north.

3. *Use narrow rows.* You can't get top yields with standard 40-in. plantings. Some farmers use a drill plugged to get the 21-in. rows that make the best yields. Others have welded old horse planters together to make a special bean drill.

4. *Kill weeds early.* Weeds are the worst enemy of the soybean. Dinitros, CIPC, and CMU are effective weed killers. Cultivation still is the best bet. Go over the crop with harrow and rotary hoe when beans are small; cultivate at least once.

5. *Harvest all the beans.* Poor combining often loses 5 to 10 bu. per acre. Shattering is particularly bad when moisture falls below 14%.

fragile plants poke shoots through crusty soils. A little goes a long way when applied in a narrow band over the row.

In tests at Ohio State Univ. and North Carolina Univ., liquid Krilium was applied with farm-type sprayers. It improved germination and emergence of soybeans, sugar beets, cotton, peas, lettuce, tomatoes, snap beans, alfalfa, and carrots.

Prices have been cut about one-third as soil conditioners move into large production. This cut makes them even more attractive to gardeners and nursery and greenhouse operators. Conditioners continue to show that they can stop erosion on new lawns. Transplanted crops do better when mixed with starter solutions. Treated backfill over tile lines improves drainage.

RIGHT AMOUNT, WRONG TIME

RAINFALL MAY be "normal" for the year—and still not come when you need it.

Example:

South Carolina, in the so-called "humid" belt, averages each summer six dry spells bad enough to damage crops. In the past 42 years, she's had 265 drouths of at least 2 weeks' duration:

117 lasted 14 to 21 days.

79 lasted 21 to 27 days.

69 lasted more than 27 days.

South Carolina doesn't sound quite so "humid," does it?

Exit Clover, Enter Alfalfa

Sweet clover, long a favorite green manure crop, has been hit hard by weevil. Good substitute: southern alfalfa. It grows fast, will give up to 2 tons of green manure, and will grow 30-in. roots before frost.

FERTILIZER THROUGH SPRINKLERS

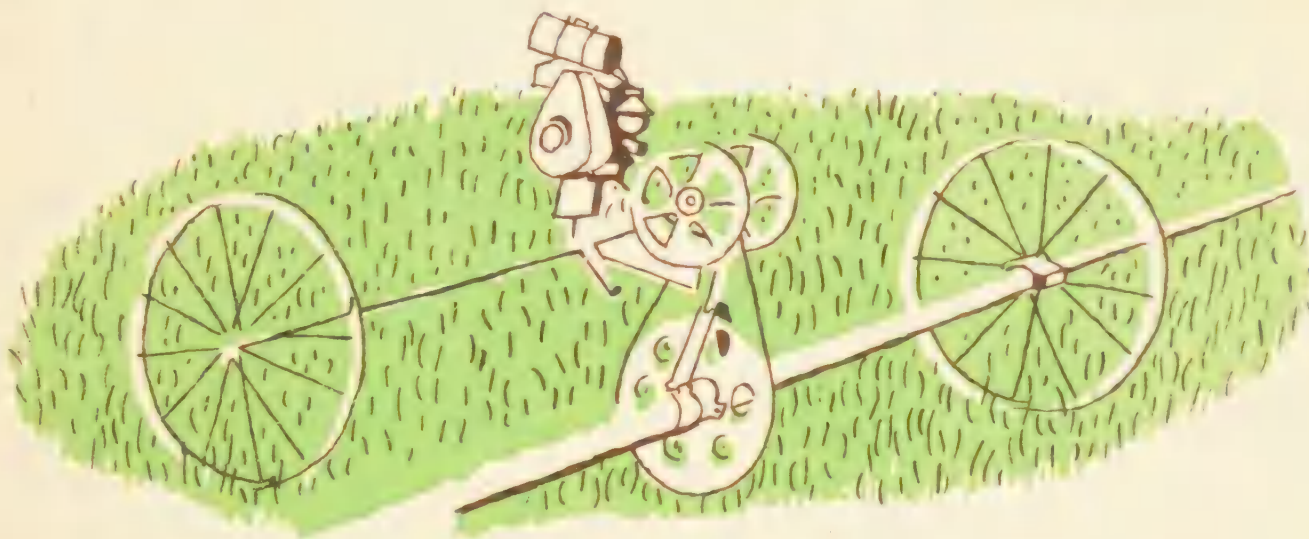
MANY INGENIOUS farmers now fertilize through their sprinkler system. This has three big advantages:

1. It saves time and labor costs.
2. Fertilizer applied in water is quickly available to plants.
3. It may take a little less material to get the same response.

Most of the common dry nitrogen fertilizers are soluble in water. Phosphoric acid and ammonium phos-

phate are soluble, as are potassium sulphate and potassium chloride. Soluble mixed fertilizers of all analyses will be available soon.

A simple way to get fertilizer into the system is through a two-valve outfit hooked to a centrifugal water pump. Fertilizer is dissolved in a 55-gal. drum before being fed into the system. A second way is to use a Venturi tube in the pipe line. This taps a closed supply tank.



DON'T FEAR DROUTH—BUY RAIN

"I DON'T WORRY about drouths any more. A drouth might even make me *more* money—now that I have sprinkler irrigation."

That was a farmer's comment where they normally get 40 in. of rain a year, but not always when they need it. Sprinkler irrigation is growing steadily in all areas.

Corn: "Irrigation in my cornfield paid me \$105 per acre," says Alvin Hardin, Henry Co., Ind. "We grew 132 bu. per acre where we sprinkled—41 bu. where we depended on rain that did not come. After deducting \$31 per acre for irrigation, fuel, labor, and depreciation, we still had \$105 left over."

Hardin irrigated from a well that supplied 600 gal. per minute. He irrigated three times between July 5

and Aug. 8 of a very dry summer.

Cotton: "We got an extra 1½ bales of cotton when we sprinkled," D. M. Whitt of the Missouri station reports. "Non-irrigated test plots yielded only 1.1 bales; irrigated made 2.7 bales. It took only 7½ in. of water to make the difference."

Pasture: "Half again as much pasture" was the report of North Carolina irrigation researchers. They found nutrients following irrigation were 52% higher. Extra return was worth \$34.50 per acre. Cows grazed 181 days under irrigation, 107 without.

On sweet potatoes, alfalfa, tobacco, wheat, and other crops, the story's the same. Some day soon farms that have water on, near, or under them for irrigation will sell for more than the "have-nots."



TRASH IS OK . . . IN FARMING

IN GRAND-DAD'S DAY a man was honored for plowing a straight furrow and turning under every wisp of grass or weed or stalk. No more! If your land is rolling, it pays to plow crooked, on the contour. It pays to be trashy, too—in farming. The farmer who burns cornstalks, wheat stubble, soybean straw, or other trash is burning money and short-changing his soil.

Soybean residue is worth about \$10 per acre, say experts. When straw from a 25-bu. bean crop is burned, \$3 worth of nitrogen alone goes up in smoke. Phosphate and potash remain in the ashes, but only the ground under the windrow is helped. Long-time fertility studies at Purdue Univ. have shown that leaving straw on the ground aids tilth and adds enough organic matter to make the straw worth \$10 per ton.

Wheat farmers were the first to appreciate the value of trash in saving

soil. Residue anchored in the ground checks blowing loss. Many farmers in the Northwest seed directly in the previous year's stubble.

Shredded corn stalks form a protective coating on top of the ground that stops winter erosion. In a Univ. of Illinois test, plots covered with cornstalks lost only 193 lb. of soil in a 2-in. rain, while bare soil lost 4,148 lb. The stalks protect soil from the hammering and beating action of rain. Falling drops have 1,000 to 100,000 times the destructive capacity of surface runoff.

Farmers used to burn trash because they thought it reduced yields. And they were right. The micro-organisms use nitrogen as they decompose trash. This reduces the amount of nitrogen immediately available for the next crop. So when plowing under a heavy crop of organic matter, add enough nitrogen to decompose it.

MANURE MULCH BOOSTS YIELDS, SAVES SOIL

SPREADING STRAWY manure on the soil about the time your crop or garden gets a good start is better than plowing it under. It boosts yields while cutting water runoff and soil loss. It also can save a cultivation or two.

About 8 loads per acre were spread by H. L. Borst, of the Ohio Experiment Station. Corn grown with mulch yielded 10 bu. more than that with plowed-under manure in two dry

years. Soil loss on plots with a 12% slope was reduced from 41 tons to 1.4 tons. Mulching cut water runoff in half.

Best yield—108 bu. per acre—was made following one weed control application of 2,4-D and one cultivation. Usually the mulch can save two cultivations. This system works best with strawy manure; well-rotted manure is less effective. Some nitrogen is lost when manure is not plowed under.

TWO-WAY STRETCH FOR YOUR PASTURE

1 : 2 : 4



MANY FARMERS are getting back \$5 to \$7 for every \$1 invested in pasture fertilizer. "Wouldn't have believed it if I hadn't seen it with my own eyes" is the way Anton Lorbetski, Oneida Co., Wis., describes what fertilizer did for his pasture.

A top dressing of 10-10-10 gave his cows 3 tons more forage per acre. The grass was also more palatable, protein-rich, and loaded with minerals and vitamins. And that's how you get *two-way stretch* in your pasture—bigger yields and higher quality that makes more milk and meat.

Harold Rodgers, Grant Co., Wis., divided a 20-acre pasture and put 220 lb. of ammonium nitrate per acre on half of it. Cows on the fertilized grass made 20,000 lb. of milk; those on the other only 5,440 lb. By spending \$85 for fertilizer, he got an extra \$585 worth of milk.

"Pasture fertilizing is one of the great profit opportunities left to livestock farmers all over the country," declares C. J. Chapman, Univ. of Wisconsin pasture evangelist. "It's a job that can be done with a telephone—a call to the fertilizer dealer brings a spreader truck to your farm."

Your telephone busy?

HERE'S A rule-of-thumb way to figure cost of livestock feed. The ratio: 1:2:4. That means \$1 worth of pasture nutrients will cost \$2 if in the form of silage or hay, \$4 if in corn or other concentrates.

So pasture is your cheapest feed.

An Ohio dairy herd has received 80% of its feed in pasture and roughage for 20 years. Per cow average: More than 13,000 lb. of milk and 500 lb. of fat. Profit: Well, he pays Uncle Sam plenty on March 15.

350% MORE BEEF

HERE'S a dramatic example of how pasture fertilizer can pay off. If farmers in Indiana followed Purdue Univ. recommendations, they could boost beef production from 80 to 280 lb. per acre.

FERTILIZER
RECOMMENDED:
300 LB. PER
ACRE



FERTILIZER
USED:
10 LB. PER
ACRE

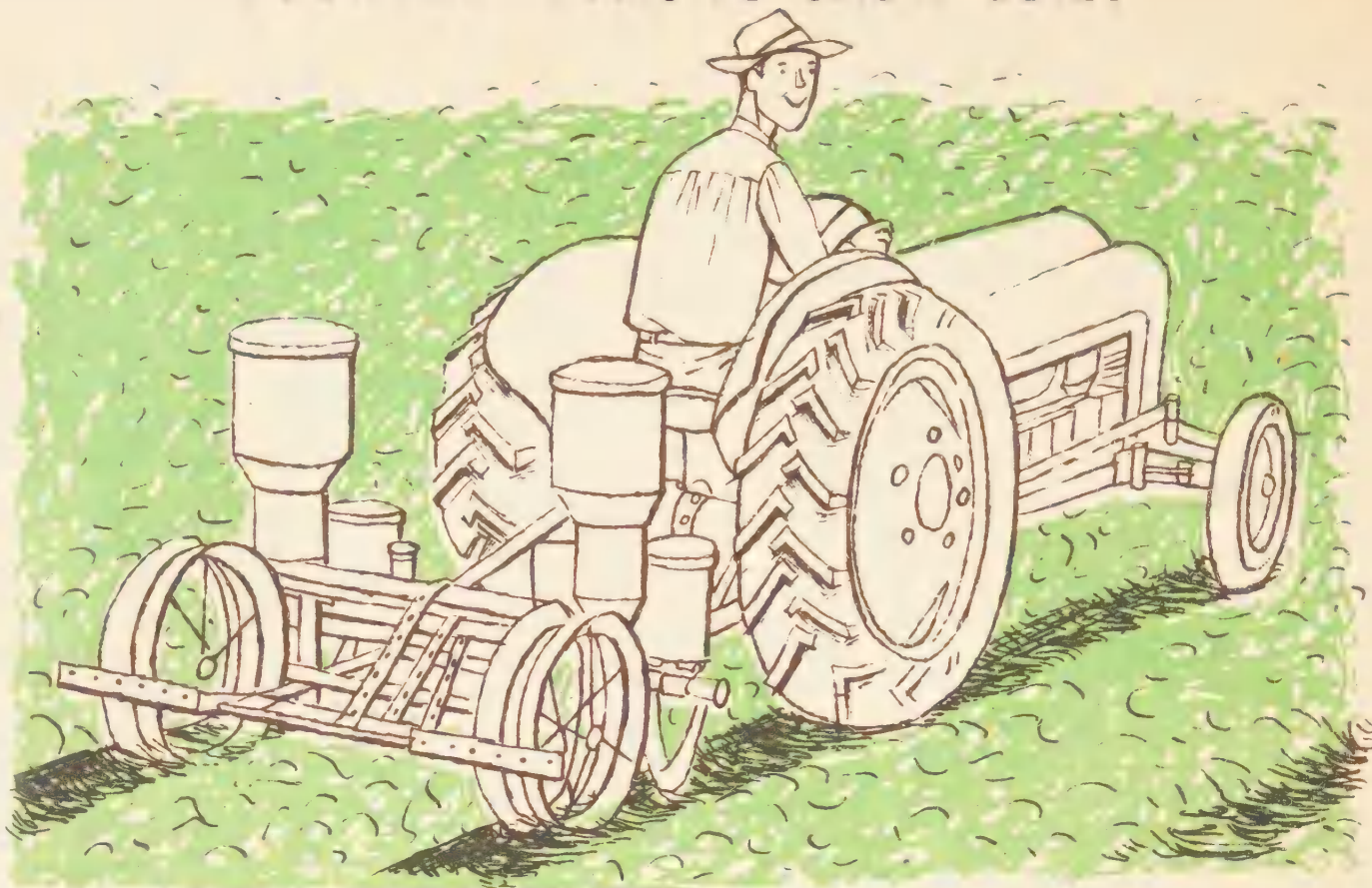


80 LB. BEEF
PER ACRE



280 LB. BEEF
PER ACRE

FOUR NEW WAYS TO GROW CORN



Wheel-Track Planting

DISKING AND harrowing are skipped in a simple corn-growing system developed by farmers in Van Buren Co., Mich. They plant on freshly plowed ground, with the planter dropping corn in the wheel tracks of the tractor. Tires crush clods and make a firm, smooth seedbed for corn.

Farmers say it saves \$8 to \$15 an acre. Also they report less compacting of soil, more water-holding capacity.

"And corn gets a start on weeds," Andy Shugars, Bloomingdale, Mich., says. "In most years it is 12 to 18 in. high before they bother." Then corn is cultivated twice in quick succession.

Wheels of the tractor are set so the planter shoes slice the center of the rear track. A remarkably good seedbed results. Subsoil moisture begins to rise in the track, and this improves germination.

Mulch Planting

A "ONCE-OVER" machine plants corn in old stalk fields or sod and places fertilizer at two different depths at the same time. Farmers who use this experimental machine report over 100-bu. yields and high net profits.

They cite these advantages:

1. Since no plowing, disking, or harrowing is necessary, much labor is saved. Dr. George Scarseth, Lafayette, Ind., reports \$28 an acre saving in man-machine costs, since he can grow a crop now with 3 tractor-man-hours.

2. Soil and water are saved. Trashy mulch or sod helps blot up water,

prevents run-off and erosion. The machine permits growing of corn on slopes. In Univ. of Wisconsin tests on a 12 to 14% slope, there was no run-off or soil lost on a mulch-planted field, while a conventional field lost 10 tons of soil per acre, says Dr. Art Peterson. There's also evidence that soil structure is improved.

3. Fertilizer can be placed at two depths: a shallow starter, high in phosphorus, 2 in. deep near seed; and a heavy shot of balanced fertilizer, particularly high in nitrogen, 8 in. deep under the row.

Continuous Corn

YONTZ BONNETT, McLean Co., Ill., has an outstanding example of continuous corn. His 8-year average on a 67-acre field is 118.5 bu. per acre. Yields have run from 100 bu. per acre to 138 bu.

This experiment is an attempt to find out whether continuous corn can be grown profitably—and what effect it has on the soil. Results to date: High yields have made corn very profitable—a net profit of over \$75 an acre. And soil experts testify the soil is better than it was 8 years ago—more friable with more tilth. The field

has been in corn for 12 out of 13 years.

High fertilization is the key to the Bonnett system. The fertilizer bill has amounted to \$38 annually. "This year we used \$30 worth—which is about 21 bu. of corn. Deduct that from our 6-year average and we still have 97 bu. of corn with no fertilizer cost," says Yontz. A tremendous amount of organic matter is plowed down each year from 120-bu. yields.

He plants 2 kernels every 20 in. in 40-in. rows to give him a 17,000 stand.

Wide Rows

FARMERS ARE shaking off a pattern set 150 years ago by the width of an ox-yoke. They're widening their corn rows beyond the conventional 40-in. width.

Nicholas Ehr, Black Hawk Co., Iowa, plants two 40-in. rows, then skips two rows, where he plants sweet clover, alfalfa, and red clover. His corn made 85 bu. per acre. He cut a crop of grass silage and got early and late pasture from his seeding. Next year he'll plant the sod to corn with mulch planter—and put legumes where corn grew this year. He claims these advantages:

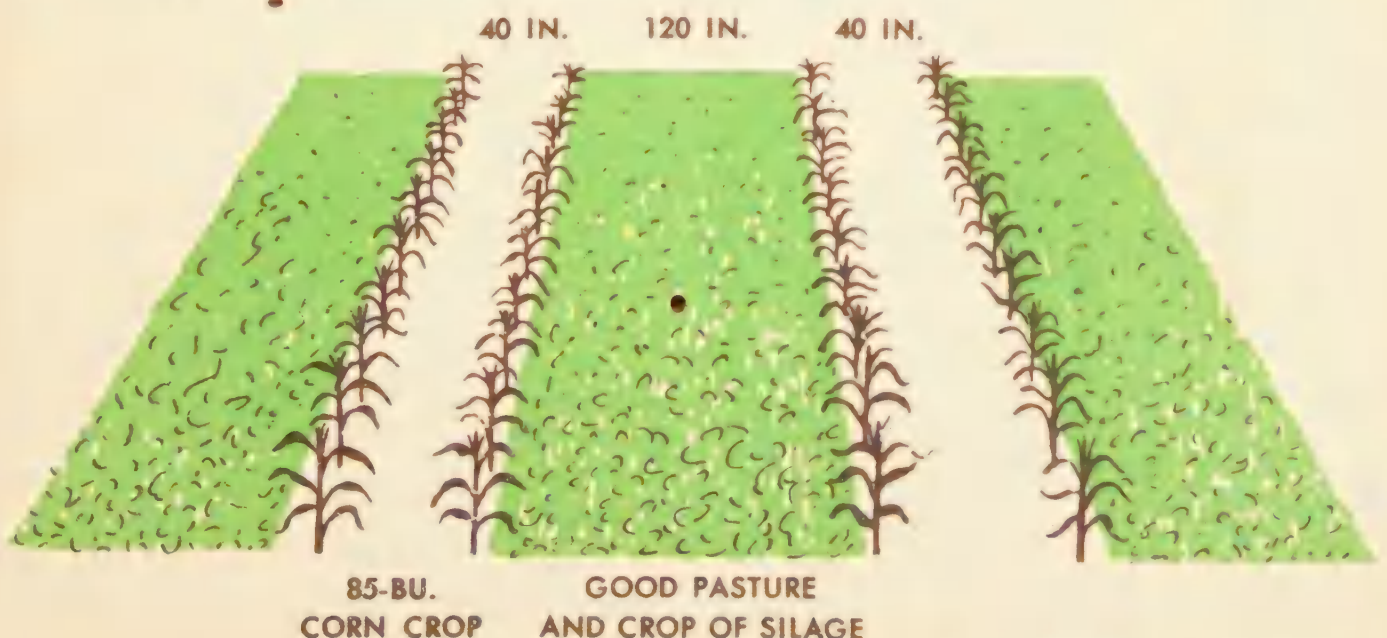
1. Two crops from same field.
2. Increased organic matter.

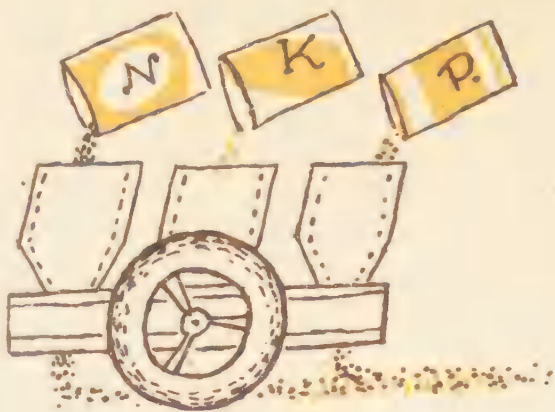
3. Soil fertility increased by legumes.

Ted Funk, McLean Co., Ill., planted 200 acres in 60-in. rows—and got 90 bu. per acre. And the legume stand between rows was as good as where he put seeding in oats. Advantages:

1. Good corn crop.
2. Poor-paying oats rotation crop unnecessary.
3. More cover and organic matter added.

Others have planted two 40-in. rows, then left out only one row. Still others have used 72- and 80-in. rows. However, research shows that corn yield goes down when rows are spread beyond 60 in.





Mix Your Own

WITH A new machine developed in Virginia, you can mix fertilizer as it hits the soil. The device has three separate hoppers: one for nitrogen materials, one for phosphorus, and one for potash. Each hopper meters independently. Advantages:

1. You can get any mixture of the three elements you desire.
2. You save about \$10 per ton bagging costs.
3. There's only about half as much weight to handle.

Suppose you wanted to spread the same elements as are in a ton of 5-10-10. You could do this by putting 297 lb. of ammonium nitrate in one hopper, 417 lb. of triple superphosphate in another, and 333 lb. of muriate of potash in a third. Total weight would be only 1,047 lb.—instead of 2,000. But the plant food content is the same, and it would cost you less.

PLANT THICKER: PAY OFF \$50 TO \$1.

AN EXTRA \$1 for seed corn brought a \$50 pay-off for Wesley Frank, Waseca Co., Minn. He increased his usual planting rate to 16,000 plants per acre and got 47 bu. more corn. Even after paying a big fertilizer bill—and heavy fertilization must go with heavy planting—he still netted \$50 more by switching to thicker planting.

In 25 years of Illinois yield tests, stands as low as 11,000 plants per acre have won only twice—in two very dry years. Thickest winning stand

You Can Order Summer "Frost"

YOU CAN now order "frost" in the dog days of summer—it's a chemical frost which will strip the leaves from those crops that are ready for harvest.

Cotton: Growers who sprayed 5 million acres last year say it saves them \$10 to \$15 an acre.

Soybeans: Spray when 25 to 50% of leaves are yellow. You'll cut yields if you hit them sooner. Harvest will be 4 days to a week earlier. Apply 4 to 6 gal. of 5% pentachlorophenol in oil or mix 1 qt. of dinitro with 10 gal. of oil. Costs run from \$5 to \$9 per acre. This method will pay best where soybeans are choked with green weeds.

Legume Seed: Apply 2 or 3 days after you would normally mow. In 3 or 4 days, stand will be dry enough for direct combining. Kansas tests indicate 1½ lb. of actual dinitro in 10 gal. of oil is about right.

Corn: "Frost" is practical in years when weather is wet. Spray in late dent stage when moisture in ears is around 35%, using sodium cyanamide. Cost runs around \$3 per acre.

was 22,000 plants per acre. All winners in the last 15 years have had stands above 16,000 plants per acre.

Here's a planting guide, developed at Ohio State Univ.:

Kernels per Acre	Spacing drilled in 40-in. rows	Kernels, when checked in 40-in. rows	Yield
9,000	17½ in.	2 and 3	60 bu.
13,500	11½ in.	3 and 4	90 bu.
18,000	8½ in.	4 and 5	120 bu.



WEATHER-PROOF YOUR CROPS

IT TAKES 15,000 gal. more water to grow a bushel of corn on poor land than if the soil is well fertilized!

Fantastic? Well, in Univ. of Missouri tests corn on low-fertility soil used 21,000 gal. of water per bushel; on well-fertilized soil, only 5,600 gal. So the old fear that fertilizer will "fire" crops in a dry season is as out of date as horse liniment. Fertilizer helps crops make better use of available moisture by making roots grow faster and deeper and spread out over a wider area, thus tapping more moisture.

Where only 5 in. of rain fell dur-

ing the growing season, corn roots grew 4 ft. deep in a well-fertilized field, but only 2 ft. deep where fertility was low. Here's what scientists found when they dug around the roots in both fields in mid-August:

Soil was still wet 2 ft. under the unfertilized corn—the roots hadn't been vigorous enough to go down far enough to tap this moisture, but the soil was dry 4 ft. down under the fertilized corn, where there had been vigorous root growth. The well-fertilized corn made 80 bu.; the other, only 20 bu. So it pays to fertilize for both wet and dry years.

More Fertilizer—More Profit

Increased fertilizer could boost net profit for central corn-belt farmers as much as \$60 an acre for corn, \$40 for beans, and \$6 for oats, and could double their hay tonnage, according to farm records.

Sprinkler Irrigation Pays

Tests in Georgia show these yield increases: corn, 25 bu. per acre; pasture, 92 days more summer grazing; pole beans, 62 to 858% increase; tomatoes, 193%; seed cotton, 320%.

GRASS SILAGE CAN MAKE OR BREAK PROFITS

YOUR BEEF gains may cost 50¢ a lb. on grass silage—or only 17¢. It depends on the way you make and feed it.

In Iowa State and Purdue Univ. tests, feeders on grass silage made with no preservative and with no supplement gained only $\frac{1}{3}$ lb. daily. Gains cost 50¢ a lb. In one Illinois test, cattle ate 44 lb. of such grass silage daily for 168 days without gaining a single pound.

That's why many farmers have been soured on grass silage. But they need not be.

Cattle fed on grass silage made with a preservative tripled their gains to 1.05 lb. daily. Preservative was 150 lb. of ground ear corn and 100 lb. ground cobs per ton, worth \$4.08. Feed cost was cut to 19¢ a lb.

Purdue Univ., under the direction of

Dr. W. M. Beeson, has developed a Supplement A. When it was added to grass silage, cattle gained 1.97 lb. daily. The cost of gains was reduced to 17.1¢ a lb.—and grade was improved from “feeder” to “good.”

Dr. Beeson and Dr. Wayne Perry have designed also a specific Supplement G to be fed with grass silage. When $1\frac{1}{4}$ lb. of this supplement were fed with grass silage, cattle tripled their gains from $\frac{1}{3}$ to 1.09 lb. “This improved the feed efficiency by 200%. It reduced silage required per lb. of gain from 102 to 31 lb.,” says Dr. Perry.

Grass silage is the key to efficient meat and milk production, for this “canned pasture” can keep winter feed costs down and profits up. The key is to add a preservative—and/or properly to supplement it when fed.

MOISTURE TEST

so the scale tells you when to start putting the forage in the silo:

10 lb.—	80% moisture
8 lb.—	75% moisture
6.7 lb.—	70% moisture
5.7 lb.—	65% moisture
5.0 lb.—	60% moisture

Here's what you can expect from silage made at each of these stages:

80%—*Too wet for good silage.* You'll have a foul-smelling, sloppy mess unless preservatives like ground grain are used.

75%—*Some silo drainage likely at this stage.* Ground grain will help prevent this.

70%—*Good condition for ensiling with preservatives.* Rake for wilting. Forage will be down to 65% by the time it reaches the silo.

65%—*No need for preservatives.* Be sure to chop short and pack well.

60%—*Will heat or mold if not packed extremely well.* Add water if forage gets drier.

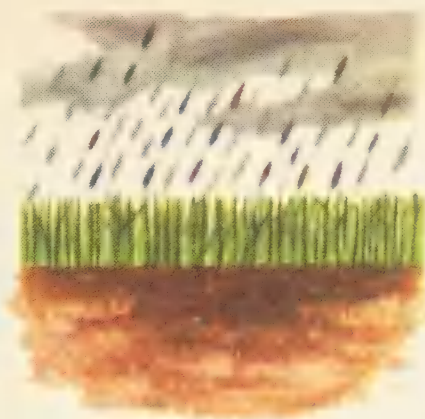


HERE'S A simple moisture test which tells you the best time to make grass silage. It was developed at the Univ. of Wisconsin.

Take a 10-lb. sample of hay immediately from behind the mower, place it on a small scale, and set it in the sun. Alfalfa or clovers cut before the bloom stage have about 80% moisture. As they dry, weight decreases,



Fall-seeded Crimson
Clover and Wheat



Protects Soil from
Beating Rains in
Winter



When Plowed Under in Spring,
Improves Soil Tilth—Gives
Better Stands, Better Yields

GROW \$40 IN PLANT FOOD OVER WINTER

YOUR FARM—or your garden—can be a wintertime fertilizer factory, manufacturing up to \$40 an acre worth of plant nutrients in the off-season.

Seabrook Farms, Bridgeton, N. J., makes heavy use of fall-seeded cover crops such as grain, grass, and Crimson clover, for three reasons:

1. They protect soil from erosion.
2. When spring comes, plant nutrients turned under equal a ton of high-grade fertilizer per acre.
3. This gives more soil tilth, better seed emergence, better soak-up of rainfall—something you don't buy in a fertilizer bag.

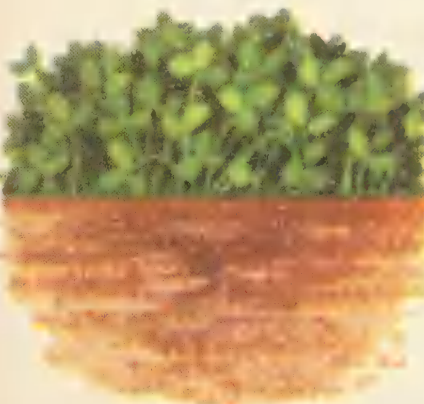
A \$4.50 seed investment in Crimson clover and wheat returned 8,200 lb. of dry matter containing 228 lb. of nitrogen, 104 lb. of phosphate, and 223 lb. of potash. That's the same as a ton of 11-5-11 fertilizer, worth \$40.

If you can't get clover started in the fall where you live, seed rye, wheat, or rye grass—and top-dress it in the spring with 25 lb. of nitrogen. This stirs the plants to vigorous growth and greatly increases the clover's value as a green manure.

In one Seabrook field such a treatment on wheat jumped dry-matter content from 1,700 lb. per acre to a total of 7,570 lb. The cover crop contained 65 lb. of nitrogen per acre—an increase of 54 lb.

How's that for a bargain—investing 25 lb. of nitrogen and getting back 54 lb.?

The increase came from soil and rainfall nitrogen that probably would have leached away without a cover crop. There also was a gain of 29 lb. of phosphate and 251 of potash. Top-dressing with \$3.25 worth of nitrogen thus brought a stored-up fertilizer gain of \$19 per acre. This will work in your fields or in your garden.



Cover Crop



228 Lb. Nitrogen
104 Lb. Phosphate
223 Lb. Potash



1 Ton 11-5-11 Fertilizer

ROJA MUTHIAH,
47, HOSPITAL ROAD

LIME NITROGEN
PHOSPHORUS POTASH

NO POTASH

NO PHOSPHATE

NO TREATMENT



FEED WHEAT A BALANCED DIET

Wheat Starvation: This picture tells the story: don't blame "winter-kill" if your wheat doesn't do well. It may be starved. Full fertilizer treatment gave 32 bu.; no potash, 24 bu.; no

phosphate, 13 bu.; no treatment, 3 bu. You can see it takes a balance of nutrients, too—otherwise your wheat may show no improvement and your fertilizer will be wasted.

"TOO MUCH" INSECTICIDE BOOSTS TREE GROWTH

WEST VIRGINIA experimenters wanted to find out if too much insecticide would hurt growth of young apple and peach trees. So they took 10 different chemicals and applied them to the soil in three concentrations:

(1) Amount normally used in season of heavy spraying. (2) 10 times that amount. (3) 30 times that amount.

Surprising thing: Trees treated with 10 times normal dosage of benzene

hexachloride showed 4 times as much new growth during one season as trees in the check plot.

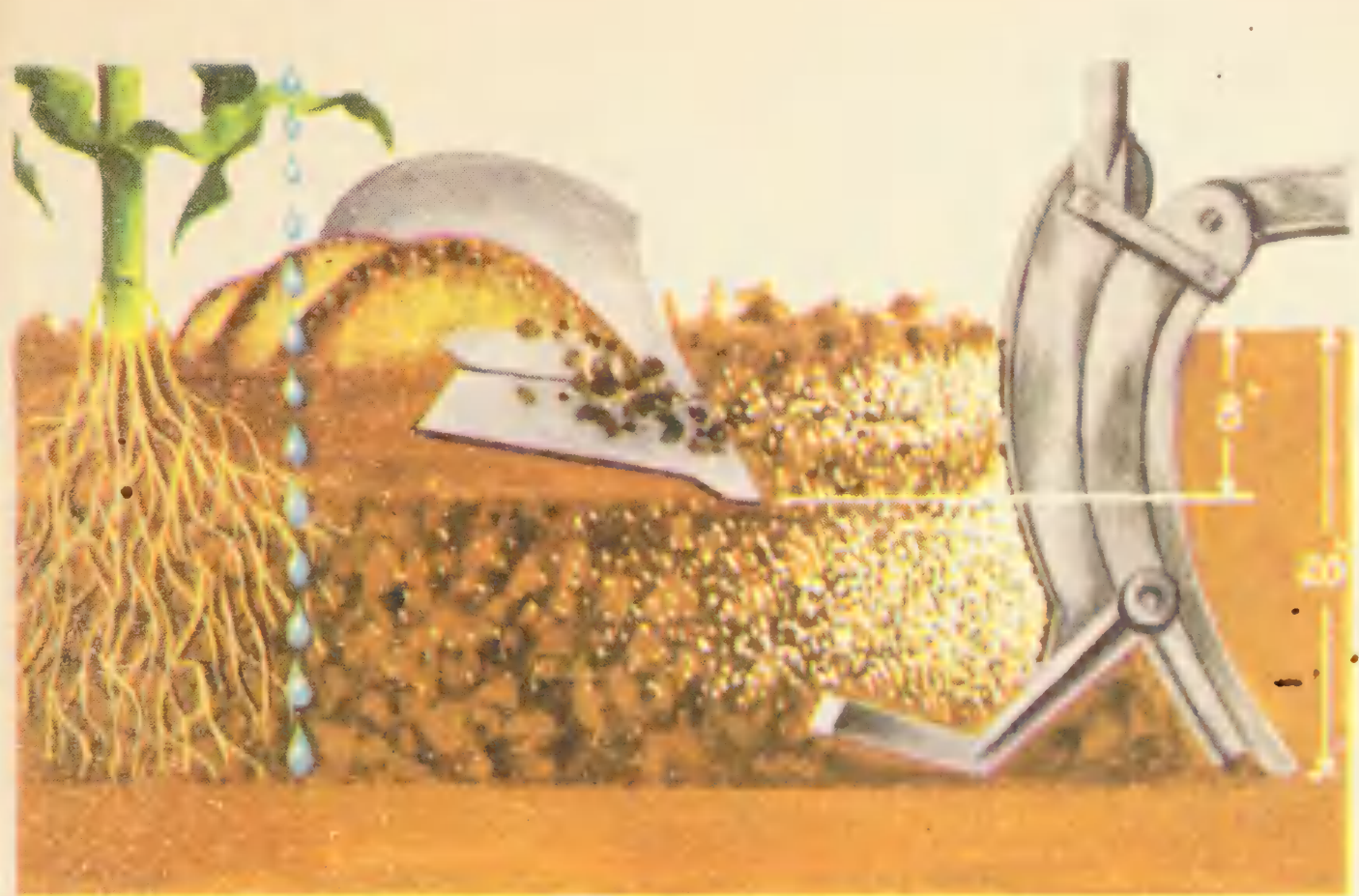
Bermuda Grass as Pasture

Coastal Bermuda grass has produced 420 lb. of beef per acre at the Alabama Experiment Station.

INOCULATED LEGUMES PAY OFF



Inoculate Legumes: Here's why it pays to inoculate soybeans and all other legumes before seeding. The brown strip was seeded with beans that were not inoculated. These beans do not contain the nitrogen-fixing nodule bacteria which permit plants to take nitrogen from the air. A few cents for inoculants will pay off in dollars in yields.



FARM THE BOTTOM HALF OF YOUR LAND, TOO

IF YOU saw a farm where half of the crop land was neglected, you'd think it was in the hands of a sloppy operator, wouldn't you? Truth is that most farmers forget about half of their soil—the half right beneath the top few inches you turn by plow.

Purdue soil scientists got 29% more corn by placing lime and fertilizer 20 in. deep than with heavy topsoil applications. "Double-deck" farming opens and loosens tight soils where roots have a hard time penetrating the plow pan compacted by heavy machinery.

Chisel openings reduce water run-off. Rains soak in when the top 20

in., instead of 7 in., are working like a blotter. Plants in such soil do better if a dry spell strikes.

Fertilizer is applied in the subsoil with a chisel that works down to the 20-in. level. Strips are opened 36 in. apart, and fertilizer is dropped beneath the plow layer. Purdue workers used 1,000 lb. of 10-10-10 and 1,000 lb. of lime. Result was a bumper 97-bu. yield of corn. Other plots with the same surface treatment made only 75 bu.

Subsoiling costs about the same as plowing. Heavy amounts of fertilizer are costly but need be applied only once in 4 or 5 years.



DEEP-TILLED AND FERTILIZED

DEEP-TILLED ONLY

NO TREATMENTS

SHARPSHOOTING WEED KILLERS

WEEDS CAUSE \$5 billion damage every year. On your farm, they may take more than \$1,000 out of your pocket. Weeds in your garden are enough to make a man lose his temper, and maybe the respect of his wife.

But science has come to the rescue with concoctions that kill. And new ones are real rifle sharpshooters in that they kill selectively. Example: 3,4-D, a first cousin to 2,4-D, will kill weeds in a new seeding without hurting either the nurse crop or sensitive clovers and alfalfa.

Here are the four families that are producing most of our herbicides:

Carbamates: These are very selective chemicals for control of grasses in legumes, cotton, and soybeans. IPC and CIPC are very promising.

Substituted Ureas: CMU, PDU, and others in this group stay in soil for a long time. Big doses are strong enough to kill everything; thinner sprays are good pre-emergence weed controls for cotton and soybeans.

Phenoxy-type Compounds: Our old friend 2,4-D is in this group along with 2,4,5-T, MCP, and recently tested 3,4-D. The newer types kill certain weeds with less danger to crops. There's also less drift to adjoining fields.

Dinitros: These compounds are used for both pre- and post-emergence weed control in large-seeded crops. Newest idea is using them with 50 lb. of lime per acre. This makes them less volatile and safer to use, particularly on cotton.

DO YOU HAVE A BRUSH PROBLEM?



WOODY WEEDS wither before a chemical attack just like the common broadleaf types. Ammate, 2,4,5-T, Silvex, and others do an effective, permanent job. Here's how:

1. **Sprouting Tree Stumps:** Scatter Ammate on stumps, using about ½ oz. for each inch of stump diameter.

2. **Live Trees:** If the tree is too big for Ammate spray, make a circle of downward cuts around the base of the trunk. Fill cuts with Ammate.

3. **Shrubs; Roadside Brush:** 2,4,5-T is most economical, but watch out for drift. Even 1/100th of the normal brush dose can injure grapes, tomatoes, and other tender crops.

4. **Scattered Brush:** Paint bottom 12 in. of trunk with 2,4,5-T in oil.

5. **Range Brush:** Use aerial sprays of 2,4,5-T or a new material called Silvex, which causes less damage to cotton and other crops. Millions of acres of mesquite and sage have been killed in range country at a cost of only \$2.50 per acre. Grass production has increased 20 to 60%.

Methuselah Weeds

GET RID of weeds? Don't be too sure you'll get the job done—at least in your lifetime. For Michigan State College scientists know for sure that weed seeds will live 70 years; they think they'll live 150 years. Twenty common weed species were buried in the ground 70 years ago, and they're dug up every 20 years to see if they're still alive. We'll bring you final results 80 years from now—in the FORD 2035 ALMANAC.



FLAMETHROWERS SCORCH 'EM DEAD

FLAMES FROM a gas burner can sear and kill tough weeds without damaging crops like corn or soybeans. Lynn Akeman, Saline Co., Mo., is sold on a butane-burning flame cultivator. He finds it will knock out Johnson grass as high as his head along with cocklebur, sunflowers, smartweed, and jimsonweed. Cost runs about \$2 per acre. Best time to use flame is when corn is 1 to 2 ft. high. Akeman points out that flame kills both grasses and broadleaf weeds—something you can't do with a single

chemical. Corn and soybeans show less damage than with chemicals if you keep the flame at the base of the plant.

Flame cultivators are useful in clearing irrigation ditches, too. A Colorado operator has a flame gun on the end of a boom attached to tractor hydraulic arms. It's just the thing to get into ditches to kill the weeds that steal water and slow its flow. And there's no chance of getting a chemical in the water that would damage tender crops.

FOOD OF THE FUTURE—OR JUST PLAIN SCUM?

HERE COMES Algie, again!

Every few months when the population experts start worrying about people starving in the U.S. in A.D. 2075, up pops a scientist with the inevitable answer: "We'll feed 'em on algae."

Now while algae are a first cousin to the green scum on your pond, they certainly are not scum to top-level scientists. Desirable characteristics of algae—on paper at least—are:

1. They are a low-life plant so uncivilized it can be grown easily, with little attention, skill, chemicals, investment, or know-how.

2. Algae can turn out 44,000 lb. of protein per acre, at a cost for raw materials of only 1¢ a lb. (Soybeans produce only about 350 lb. of protein per acre.)

3. A teaspoonful of algae (and the Carnegie Institution has found out how to grow, harvest, and store an edible type) has the protein content of a steak.

And the verdict of the gastronomic jury who've just sampled this Food of the Future?

"Algae taste like hay."

Okay, livestock raisers—back to your chores!

NEW CROPS

THERE ARE 300,000 plant species in the world, but U.S. farmers depend almost entirely on 150. Maybe it's time we were branching out. Here are some new possibilities:

Safflower: This ancient Indian oil crop has steadily grown in favor as a cash crop in the western Great Plains and northern California. Research is producing seed that will give higher yields and more oil. Yields vary from 250 to 2,500 lb. per acre on dry land, as high as 4,000 lb. on irrigated land.

Sesame: One of first oil-seeds cultivated by man, this may have a bigger U.S. future now that plant breeders have found out how to keep the seed from shattering on the ground before maturity. Long planted in gardens of the Southeast, it's now being grown commercially in the West. Sesame has longer life than vegetable oils, more protein than cottonseed cake. It can be harvested with machinery.



Bamboo: This is a potential money-making crop for 50 million acres of marginal land in 9 southern states, say USDA researchers. It has 70 different uses, ranging from scaffolding to food to phonograph needles—not to mention fishing poles. It's estimated bamboo groves could bring in as much as \$170 an acre per year, and once established take little care. Biggest potential use is paper; for bamboo produces seven times as much cellulose per acre as pine.

NEW PRACTICES

IF THERE'S a better, cheaper, quicker, easier, safer way to do a farm job, one of you farmers will find it. Here are three examples:

Cheaper: There's a growing demand from farmers that pesticides be mixed right in with fertilizers. That way they can fertilize their crops and kill such pests as rootworm, wireworms, and cutworms at the same time. Many farmers now use fertilizer containing Aldrin to kill corn rootworms.



ALDRIN TREATMENT NO TREATMENT

As Dr. George Decker, Illinois entomologist, says: "Whether we like it or not, there's going to be a shotgun wedding, and the farmer holds the shotgun. He isn't going to fertilize today and dust next week, if he can do the two at once."

And while we're mixing up a "once-over" batch, why don't we try spicing it up with a soil conditioner? And perhaps a weed retardant?

Better: Ray Whetstone of Allen Co., Ohio, stopped up every other hole in his wheat drill to get 14-in. spacing between rows. Result: Bigger yields, less seed, and much better legume-grass seeding. In fact, he says the grass pasture was ready to take over the minute his wheat was harvested.

Safer: Some Michigan farmers use sprinkler irrigation to keep late frost from nipping strawberries in the spring, and early frost from killing vegetables in the fall. Tomatoes, peppers, and broccoli were protected by such irrigation through Nov. 3 on one farm, while unprotected crops were killed by frost the first week in October.



LATEST IN LIVESTOCK, DAIRY, AND POULTRY

IN MUCH of the world, cows still pull plows, pigs run wild, and roosters are raised to fight. Nevertheless there are more exciting things happening in the livestock field today than at any other time in history. Just scan the headlines.

In breeding you see such stories as: New hog inbreds have "hybrid kick". . . . Santa Gertrudis, first American cattle breed, is in demand around the globe as beef that beats the heat. . . . Dairy cows are now bred to distinguished sires that are dead. . . . Turkey toms strut no more in California—the hens are bred artificially. . . .

Feeding headlines are revolutionary: Pigs are weaned in a week as sow fails baby-sitting test. . . . Hormones worth 42¢ give \$22 worth of extra meat. . . . Broilers make pound of meat on only 2.7 lb. of feed. . . . Corn cobs are turned into T-Bones. . . . Soapsuds prevent bloat. . . .

Labor-saving equipment has made giants: A man can feed 500 steers, or milk 100 cows. He can handle 40,000 broilers or look after 5,000 laying hens . . . or raise 1,000 hogs.

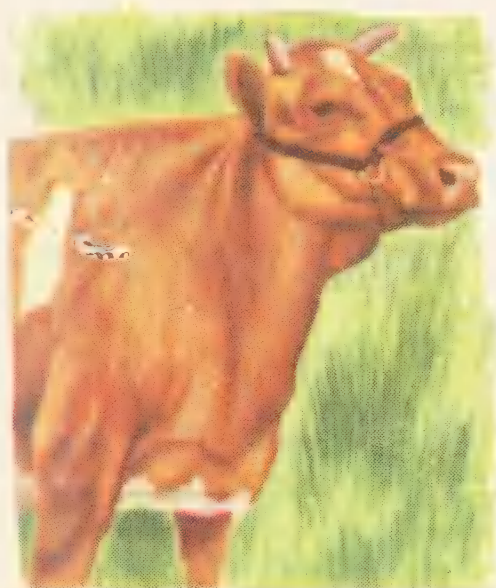
It sounds almost automatic. But that old adage "*The eye of the master fattens his flock*" was never more true than today. For it takes management to make hens lay 240 eggs and cattle show cheap gains. It's management that gets the most pork and milk from the least feed. And it's the MAN in livestock MANagement who holds the key.

KNOW A GOOD COW WHEN YOU SEE ONE?

YOU LOSE money every time you allow a poor producer in your milking string. Here are things to look for when you pick a dairy cow, as out-

lined for *Country Gentleman* by H. H. Kildee, former Dean, Iowa State College, and internationally known livestock judge.

CULL HER!



CHARACTER AND CAPACITY

These are most important. The poor cow (left) has thick neck, heavy brisket, meaty shoulders, rounded withers—she lacks "dairy character." The better cow (right) gives 70% more milk. She has lean neck, sharp withers, prominent backbone; also big capacity, as shown in deep, well-sprung ribbing and big, wide muzzle.

KEEP HER!



UDDERS

Low, narrow udder means poor production. Back teats should give 60% of milk. Cow on right has high, wide udder attachment, plenty of length from front to rear. Notice thin thighs.



FEET AND LEGS

In the cow at left, crooked hocks have begun to fill. Her feet hurt, and she won't walk to get forage she needs. Cow on right has good straight legs, set wide apart to allow rear udder room.



DOES IT PAY TO HAUL PASTURE TO COWS?



YES!

THOUSANDS of farmers who chop green forage daily and haul it in to feed their cattle say they get enough extra beef and milk to make the system pay. They report:

1. More grass—35% to 200% more than when cattle graze.
2. No midsummer slumps in milk production or beef gain.
3. Less trouble from bloat.
4. Fencing and water costs are reduced.

Forage gains almost equaled gains from grain feeding in Iowa State tests. Cattle getting brome-alfalfa in the feed lot plus corn made 2.5 lb. per day. Return was 480 lb. of beef per acre; cost of gain, 17¢.

Raymond Petefish, Story Co., Iowa, says carrying pasture doubles or triples its capacity. He fed 100 Holstein cows and heifers on just 45 acres.

A Massachusetts herd getting 100 lb. of chopped feed per day increased production about 2 qt. per cow daily. Feed costs dropped 20%, and there was no midsummer slump.

Western farmers are making most extensive use of carrying. Under irrigation, chopping brings two extra crops of alfalfa and 25 to 35% more forage. They also report that with bunk feeding it's much easier to prevent bloat—and to detect it in time if it should occur.

Farmers everywhere agree there's less waste. Cows can't sort out what they like best and leave the remainder. And the 40% waste in trampling is eliminated.

NO!

"No" is the advice of other farmers who have hauled in green forage—or who have done some close figuring. They find it takes more time and costs more than it is worth. They report:

1. A cow is the cheapest harvester you can use.
2. You have to buy or own \$5,000 to \$6,000 worth of equipment.
3. Cows go hungry if machines break down.
4. Bloat is more of a problem.

It takes a lot of time to carry forage. Chopping for 50 cows at Rutgers Univ. took 2 hours per day, and it took another 20 minutes to care for equipment.

Bloat can still be a big problem although most farmers are learning to avoid it. One Wyoming feeder lost 3 heifers in 20 minutes when he carried in immature, third-cutting alfalfa.

"It takes a 100-cow herd to make pasture carrying pay," Univ. of California dairymen say. They think the practice has been oversold and point to the expense of owning and running \$6,000 worth of equipment.

Breakdowns always are a problem. Choppers are complicated machines and accidents do happen. And if a cow doesn't get her feed on time, you'll get her gripe in the form of less milk. Some Arizona operators have found it necessary to keep a spare chopper on stand-by.

Right now one thing is sure: carrying pasture won't fit every farm. Weigh advantages and disadvantages carefully before giving it a trial.



MINNESOTA NO. 1

NEW INBRED HOGS SPELL MORE PROFIT

WANTED: A boar that will give you big litters and thrifty pigs that grow fast on less feed—and make you more money. . . . That's exactly what is now available in new breeds of hogs, developed by combining and inbreeding with resulting "hybrid kick."

"A good production-tested boar with hybrid vigor can save you \$750 a year in feed alone," says Tillman Bubenzer, Conner Prairie Farm, Noblesville, Ind.

Newest of these breeds is Minnesota No. 3, developed by Prof. L. M. Winter, Univ. of Minnesota, who also developed the famed No. 1 and No. 2.

This new breed fits well into a 3-year rotational boar program, selecting gilts from your own herd. Cross-bred pigs from these boars have plenty of hybrid vigor. Result: Real money makers in your hog lot.

Dr. Winters used three English hogs—Welch, Gloucester Old Spot, and Large White—for 55% of the new breed. He also added a dash of the Beltsville No. 2, Minnesota C-Poland, San Pierre, and Minnesota No. 1 and No. 2. When crossed with the No. 1 and No. 2, this line made 200-lb. market pigs in 130 days.

Minnesota No. 1 was developed by crossing, inbreeding, and selection of Tamworth and Danish Landrace. These hogs carry 20% less fat than standard breeds. Carcasses are noted for uniform, lean bacon. Farmers like the vigor, livability, fast growth, and economical gains of Minnesota-No. 1-sired pigs. In tests, sows weaned more than eight pigs; gained 1.37 lb. per day; and used only 341 lb. of feed for each 100 lb. of gain.

Minnesota No. 2 is based on Poland China and Canadian Yorkshire breeds. Pigs made 100 lb. of gain on 298 lb. of feed in Minnesota tests. Carcasses yielded more than 70% primal cuts. This breed has been best in crosses with the No. 1, but farmers have liked pigs produced by a cross with any breed.

Other new breeds include: Montana No. 1, 55% Landrace and 45% Hampshire; San Pierre, 50% Berkshire and 50% Chester White; Maryland No. 1, 62% Landrace and 38% Berkshire; Beltsville No. 1, 75% Landrace and 25% Poland China. Beltsville No. 2 is made up of Black Hampshire, Danish Yorkshire, and Danish Landrace.

HOG OF TOMORROW

MRS. AMERICA is charting the Hog of Tomorrow. She wants lean ham and bacon, and is only mildly interested in lard. And the pointing of her finger at the meat counter is far more important to hog raisers than the judge's nod in the show ring. For if Mrs. America turns up her nose at fat pork and buys 2 lb. of other meat for the family meal instead, the market for 2½ million hogs is lost.

On the hoof, the housewife's preference in pork looks something like the pug-nosed Berkshire below. But there are meat-type hogs in all of our breeds.

How to Get Him: You can raise a pretty good bunch of meat-type pigs the first year. Select the best meat-type gilts in your herd, then breed them to a good meat-type boar.

He Costs Less to Grow: Iowa State College tests show these leaner pigs are more economical and grow a little faster than the fatter types. Hogs with a high percentage of lean cuts ate only 333 lb. of feed for each 100 lb. of gain, and they weighed 227 lb. in 5 months.

Bernard Collins of Clarion, Iowa, figures his inbred Poland boars have

cut his feed bill 10% while giving him better selling meat-type pigs.

Why the Packers Pay More: A meat-type hog may be worth \$2 or \$3 more to the packer than a fat-type hog of the same weight. That's why several packing plants are paying 25¢ to 50¢ a hundred more for these meaty hogs. You can expect even higher payments in the future.



These primal cuts make up about half of the meat from the hog but bring in 70% of the return from meat sales. Three years ago they brought 66%, 5 years ago 60%, and 15 years ago only 55%. These figures show that lard and other fat parts of the hog are worth less each year. The hog of the future must have more of the cuts people demand, less of the lard and fat that hold down the price.



BERKSHIRE

WELL-BRED HENS MAKE \$4 ABOVE FEED COST

MORE FARMERS lose than make money on poultry, farm records show. Yet top poultrymen make \$4 a hen above feed cost.

And just to show what a hen can do for you when properly bred, properly fed, and properly managed, Honnegger's Leghorns, Forrest, Ill., won

last year's "Net Earnings" test in California. Each of the well-bred hens netted \$7.15.

Dr. A. P. Loomis, poultry breeder, says, "A good flock of 500 layers like these pictured here will make you as much income as 80 acres of good crop land."



SPEND A DIME—MAKE \$2

HERE'S HOW you can trade 10¢ worth of electricity for \$2 worth of fall eggs. Put hens on a 14-hour day with extra light, which costs 10¢ a month for 100 hens. By "working" longer they'll lay an extra 20 doz. eggs. With fall eggs selling for about 10¢ per doz. more than those in spring, you can figure the dime pays off with \$2.

HENS NEED A PINT

PURDUE UNIV. researchers say it takes a pint of water to make an egg. Of course, nothing less than an ostrich egg will hold a pint, but it does take a lot of water to keep a hen going. So if the fountain goes dry in summer, or freezes over in winter, better get it into working order soon—or you'll get fewer eggs.



HENS HOT? GIVE THEM A SHOWER

DON'T BELIEVE what they say about a wet hen being cross! At least she won't get mad if she gets her shower on a burning hot day, California poultrymen find. They've tried it.

Hens rebel when it gets hot. Feed consumption at 100° is 41% less than at 70°. At 100°, egg production almost stops and birds begin to lose weight. Water sprays cool the air and get hens back at work.

Some operators spray birds directly; others put the spray on the roof. Fog nozzles do the best job.



NO FALSIES HERE

MEAT CHICKENS developed by Woodcrest Farms, Riverside, Calif., sport a plump double-breast. They started out as "freak" New Hampshires, now are dominant for the double-breasted character.

When crossed with other breeds, 50% of birds are "double" at fryer stage and more at maturity. Dress-out is 26 to 28%, about 5% better than average. Feed conversion and growth have been excellent.

QUIET! HENS AT WORK

WHEN Prof. W. J. Stadelman began to suspect noise had something to do with bloodspots in eggs, he decided to test the idea. He took a recording of guns firing, big tractors working, and other loud noises into a Washington State College poultry house and turned it on—to the hens' consternation. When he cracked the eggs, sure enough, there were more blood spots. Noise excites hens. They fly around and hit objects, and spots may result.



CHECKING UP!

NAIL a paintbrush to the nest and you can find out which hens do the work. Use a different color every day. At the end of 4 days check up. Hens with no coloring are boarders only; one-color hens are poor layers; two- and three-color hens are the ones to keep.

100 TURKEYS—\$600 NET

MRS. K. E. FOUST raises just enough turkeys to keep her in spending money. She figures the small flock on her Evansville, Iowa, farm nets her about \$600. She sells directly to customers and gets a good price for dressed birds. Poults are purchased, then brooded in a small house. They are fattened on high-protein mash and grain while ranging on alfalfa.

HERE'S WHAT TO LOOK FOR . . .



This Hereford heifer is the thick, low-set, blocky type breeders like. Her smooth, well-nourished look suggests quality and efficiency of gain. She stands well, has good size and weight

for her age. She'll make some farmer a profitable, long-lived beef cow. Good type means maximum development in the cuts that bring the higher prices in the market.



This meat-type gilt of the Hampshire breed has the length of the meat-type hog. She is smooth and has good balance between ham and shoulder. Gilt

is quiet and easily managed. She has 12 "dinner plates" and promises to be a good mother for a large litter of fast-gaining pigs.



This magnificent Guernsey is a delight in both show ring and milking barn. Her head reflects ideal dairy type, and she has the deep body that means ability to turn roughage into

low-cost milk. Trim bones, strong legs will carry her through a long, productive life. Her first two lactations yielded 12,400 and 15,730 lb. of milk, 630 and 704 lb. of butterfat.

. . . BUT DON'T GO BY LOOKS ALONE!

Better Beef Is on the Way

CATTLEMEN are using two new methods to get better breeding stock.

One is to weigh calves at weaning (see chart, page 22); this permits scoring milking and "rustling" ability.

The other is to test a young bull's ability to make fast and efficient gains. This ability is 80% heritable—and so will be passed on to the calves he sires. For example: In an Arizona Experiment Station, young bulls on feed test made from 2.05 to 3.28 lb. daily gain. Calves sired by those gaining over 3 lb. daily will do better in the feed lot than slower gainers.

In records on 105 steers, progeny

from the best bull averaged \$56 per head more than the progeny of the poorest bull. Let's say you're a feeder: If you got 50 calves from the best bull, you'd make \$2,800 more than if you got 50 calves from a poorer bull.

Dr. R. T. Clark, who is working with top beef research men from 35 states, Hawaii, and the USDA, sees these possibilities in beef cattle:

Calves weighing 450 to 600 lb. at weaning. Gains of $2\frac{3}{4}$ to 3 lb. a day in the feed lot. Market weight of 950 to 1,000 lb. at 12 months. Dressing percentage of 51 to 62% of good-quality beef.

Here Is How to Pick Gilts

PICK your gilts from high-performance litters. Here's how to do it:

Litter weight at 56 days, the usual weaning date, is the key figure, since it reflects litter size, sow performance, and ability of pigs to make use of feed. This litter weight is about 20% heritable. If you select gilts from litters weighing 100 lb. above average, you can expect their offspring to improve that average, 20 lb.

Count, weigh, and mark pigs at farrowing. As the litter grows, record the number of pigs lost, reason for death, and remarks on ability and disposition of the sow. Gilts selected from sows that are the best mothers are likely to raise the most pigs.

At weaning time weigh pigs and convert figure to 56 days of age. This procedure clearly shows which are the high-performance litters. A high goal for most hog men is 8 pigs weighing 40 lb. each. Pick good-type gilts with 10 or 12 teats from such litters. Certain defects are highly heritable and thus poison; therefore cull gilts with inverted nipples, hernias, poor vision, and poor legs.

There's real profit in hogs when you sell 8 hogs per sow, the hogs weighing 200 to 220 lb. at 6 months or less and making 100 lb. of gain on less than 400 lb. of feed. But you'll never reach it by marketing your good hogs and saving slow-growing gilts to breed.

Study Your Dairy Records

THE MOST highly developed performance-testing tool in the livestock world is the Dairy Herd Improvement Associations, which date back 25 years.

A cow-tester is hired by a number of dairymen to test for butterfat and production per cow. A farmer knows which cows should be culled, and since production is passed from dam to daughter, which calves to keep.

Now owner-sampler testing, a simple, low-cost plan, is swelling the number of herd owners that know

how cows are doing. The owner weighs his milk and draws the milk sample, which is sent to a central laboratory for fat test.

Lactation records of purebreds are used to compare a bull's daughters with their dams. Some bulls can give a herd a 100-lb. fat boost, while a poor bull will make your herd go downhill. A big advantage in artificial insemination is that you can see the records of older bulls—see how their offspring are doing in the dairy barn.

LOOSE HOUSING: CHEAPER, MORE EFFICIENT

A 3-YEAR study of loose housing for dairy cows by the USDA in the St. Louis area reveals three things of interest to all dairymen:

1. Old dairy barns can be remodeled or new ones built for half the cost of conventional barns.
2. Chore labor time can be cut by 60%.
3. High-quality milk can still be produced.

The ordinary dairy barn today costs about \$400 per cow. But dairy facilities for a 20- to 30-cow herd can be built for \$200 a cow. This figure includes elevated milking stalls, pipeline milker, milk handling room, spray cooler, water system and heater, open sheds for loose housing, ground-level storage for hay and silage, and paved barnlot.

Average man-hours of labor per cow for the farms studied was 155 when the test started. When all equipment was installed, the time was cut to 58 hours.

Main reason for the study, carried on by Doane's Agricultural Service for the USDA, was to see if high-quality grade A milk could be produced with cheaper equipment—and

less labor. In many milk sheds, city health departments have set up extremely rigid requirements for producing milk: so much window space, milk house has to be so many feet from barn, etc., etc. This study proves that many of these expensive requirements are unnecessary to produce high-quality milk.

ANTIBIOTICS FOR CATTLE

NEW TESTS show antibiotics can put fast gains on cattle too. In a 3-year test at Purdue, a penny's worth of antibiotics gave an extra $\frac{1}{2}$ lb. of gain daily on the same amount of feed.

Antibiotics showed up best when fed at very low level, with a high roughage ration. They gave most of their kick during the first 84 days of feeding. Aureomycin-fed steers gained 1.79 lb. daily compared with 1.28 lb. for the control lot. Ration consisted of 15 lb. of ground corncobs and 3.5 lb. of Purdue Supplement A.

Feed efficiency was increased 20 to 29% for the steers—compared to the 5 to 10% increase antibiotics give hogs.

HOGS DIDN'T DO SO GOOD IN "GOOD OL' DAYS"

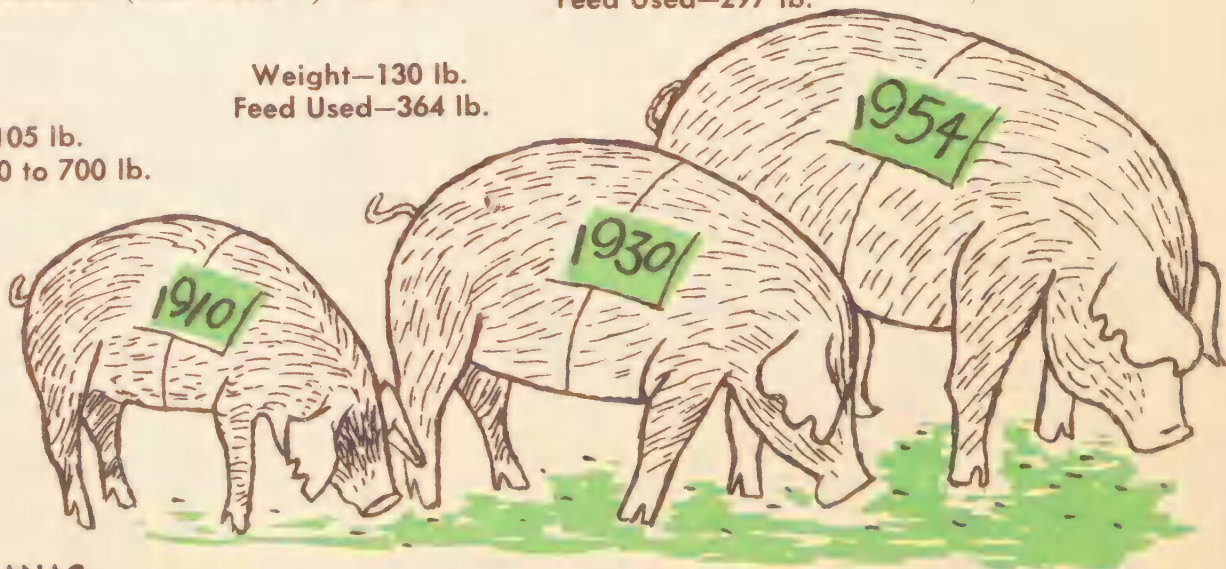
DR. LESTER HANSON, Univ. of Minnesota, compared today's hog rations with those of 20 and 40 years ago by actually feeding out some purebred hogs. This picture (see below) of the

hogs at 141 days tells the story—and shows the debt farmers owe the feed researchers.

Weight—200 lb.
Feed Used—297 lb.

Weight—130 lb.
Feed Used—364 lb.

Weight—105 lb.
Feed Used—600 to 700 lb.



42¢ IN HORMONES = 100 LB. OF BEEF EXTRA

BIGGEST cattle-feeding news in years comes from Iowa State College, where steers made an extra 100 lb. of beef when fed only 42¢ worth of hormones. They gained over 3 lb. per day—more than any similar cattle have ever gained in Iowa State tests. Hormone-fed cattle gained 25% faster on 20% less feed than other cattle. When sold, these steers brought higher prices and returned an extra \$21.90 per head.

Hormones have been used before with livestock, but not fed. In Purdue Univ. tests yearling steers, with stilbestrol pellets implanted in their necks, gained 3.1 lb. a day compared with 2.72 lb. for control lots.

Hormone pellets increased lamb gains from 0.35 to 0.5 lb. daily, and cut feed costs per lb. of gain from 13.37¢ to 9.29¢ a lb.

Feeding the hormones is much more promising, because the hormone can be better controlled, and there's less work, believes Dr. Wise Burroughs, who conducted the Iowa State tests.

Also, implanting sometimes resulted in uneven finish and poor carcasses.

Steers on a full feed of corn, plus 12 lb. of cornstalk silage, 2.5 lb. of hay, and 2 lb. of soybean oil meal gained 2.33 lb. daily. When 11 milligrams of stilbestrol was added to the same ration, cattle gains jumped to 3.06 lb.

Cost of gain was 17.3¢ per lb. Hormone-fed cattle made 100 lb. of gain on 184 lb. less feed. That's a 20% improvement in efficiency.

Cattle also did well on a hormone-supplemented roughage ration. Steers fed a corn-and-cob mixture containing twice as much cob as ground ear corn, plus the hormone, gained 2.91 lb. daily.

The Iowa State College research foundation has applied for a patent on hormone feeds. It will license feed manufacturers to make a carefully controlled supplement. This will prevent dangerous over-use of the material.

FAT PROFITS FROM FAT FED TO FAT ANIMALS

WE FEED animals so well (or poorly) that they produce more fat than people will eat—so we now feed the fat back to the animals at a profit. That begins to sound like perpetual motion, but the catch is that there's a limit to how much fat can be put in the ration.

Tallow and grease have 2½ times the calories found in corn. That's why they are valuable in livestock feed. At 7.5¢ per lb. they are equal to \$1.80 corn. At 4¢ a lb. tallow and grease are as cheap as \$1.00 corn.

Steers on a 160-day feeding test in Nebraska ate 20 bu. less corn when put on a high fat ration. They finished out just as well as others that got twice as much corn.

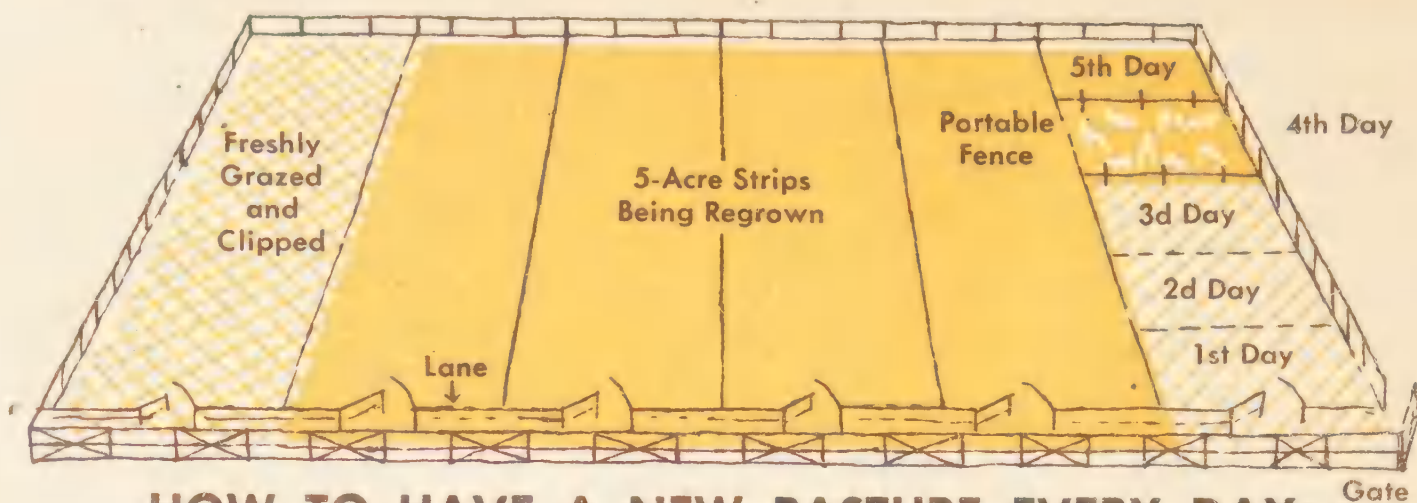
Hogs have done well in other tests when they've been fed on rations containing up to 15% fat. Lambs gained well on either 5% or 10%



fat rations, but the cost was a bit higher in Iowa tests.

Laying hens can be fed 8% fat without cutting production; broilers have improved feed efficiency about 10% with a high-fat ration.

Manufacturers are now using about 200 million lb. of fats in feed. The potential supply is about a billion pounds per year. And a pair of side benefits appeal to the feed manufacturer: as little as 1% fat eliminates their dust problem, and fats also tend to "lubricate" machinery, making it last longer.



HOW TO HAVE A NEW PASTURE EVERY DAY

WHEN cows get a fresh strip of pasture every day, they eat more and produce more, and there are fewer peaks and valleys in the milk check. The practice has been worth an extra \$1,000 per year to a 17-cow Iowa dairyman. When he let the cows graze at will, they made 88,000 lb. of milk. When he controlled their use of grass-legume pasture, their production went up 25,000 lb.

There are two reasons for the 20 to 30% increase in production most farmers get with daily rotation. First, cows trample and soil a lot of grass if they get a chance. Secondly, legumes can be harvested at the proper time to get the most out of them. California forage specialists say ladino

clover should get 25 days' regrowth, alfalfa birdsfoot trefoil 25 to 30 days. You can get this interval with a rotational plan.

Univ. of Wisconsin agronomists using electrified fencing divide your pasture into narrow strips (see drawing), each touching a lane that leads to the barn and to water. Cows are given about an acre of the strip, with a one-strand crossfence. Next day this fence is shifted to give them another acre. When one strip is finished, cows are started on another.

If forage gets ahead of the cows, cut it for hay or silage. Most farmers find growth is too fast the first time through the rotation, about right the second time, and a little slow the third.

SOWS BRED TWICE FARROW MORE PIGS

REBREEDING sows 24 hours after first service increased litter size by an average of 1½ pigs when Rabin Pullin, Jasper Co., Ind., gave it a try.

TAKE OFF EXTRA TEAT

USE A rubber band to squeeze off those extra teats. Slip it around the base of the teat tightly enough to cut off circulation. In a week the teat will be gone and the wound will be completely healed.

To apply the band, wind it around a shotgun shell that will fit over the teat. Then slip band off shell onto teat.

Tight rubber bands will also dehorn calves and castrate lambs.

WHICH END TELLS MOST ABOUT A DAIRY COW?

DAIRY judges pay more attention to a cow's udder than anything else. But that's the wrong end for judging a cow, according to a study made by USDA researcher W. W. Swett.

He measured 1,000 dairy cows to see if he could match bodies with production. He discovered that the length of the head was the thing that most often matched production. Neither live weight nor body width had much to do with amount of milk made by the Jerseys and Holsteins.

Swett thinks it is doubtful that feeding capacity of a cow can be judged by her outside form, although body depth at forechest is closely related to milk record.

CAUSE OF BLOAT FOUND: NOW FOR A CURE

SAPONIN, a soapy substance in legumes, is the cause of bloat. USDA researchers at Beltsville and Albany, Calif., isolated alfalfa saponin and fed it to sheep, goats, and heifers. In five out of eight cases it caused bloat. Each ton of alfalfa or clover has several pounds of saponin.

The California station is running tests to see if a chemical can be found to neutralize the effect of saponin. R. E. Nichols, Univ. of Wisconsin researcher, has found that common household detergents can prevent bloat. But like the California workers, he isn't ready to recommend anything to farmers.

A third way to fight bloat is with a "lick block" placed in the pasture. It has a carbohydrate base that seems to combat bloat. Cows lick it just as they do salt.

Until one or more of these cures pan out you can:

1. Feed some dry hay to cows before turning them into pasture. Or mow a strip through the field to give a swath of hay without pitching or hauling.

2. Keep cattle off pasture until dew is gone.

3. Try for at least 50% grass when establishing a new pasture. Legumes are most dangerous when grown alone.

SLEEP LONGER— YOUR COWS CAN WAIT

THE DAIRYMAN who crawled out of bed at 4:30 a.m. every morning because he thought cows had to be milked every 12 hours can sleep till 7 o'clock now. Experiments at the Univ. of Minnesota show there's no loss of milk when cows are milked at 10- and 14-hour intervals.

And in a similar test in Sweden, cows made just as much milk when they were milked at 8- and 16-hour intervals.



Now Dr. W.E. Petersen is wondering about giving the dairyman a good rest on Sunday. He's trying to find out how much milk a dairyman will lose if he milks only once that day.

He's also checking a way to get 8 hours' sleep with three-time milking. This system brings 15 to 20% more milk and can boost production in fall and winter when prices are best.

"Milk at 7 a.m., 2 p.m., and 9 p.m." Dr. Petersen advises. That's a 7-7-10 spacing which leaves plenty of time for an 8-hour sleep.

BULL SIRE 100,000 CALVES?

FROZEN semen promises to spread the blood of our best dairy and beef bulls across the country. By carefully storing semen and preventing waste, it may be possible to get 100,000 calves from a single superior sire.

Dairymen can "plan" matings by requesting frozen semen of any particular bull, whereas with fresh semen they must take what's available on the day the cow is ready.

Eastern Iowa Artificial Breeding Association, Cedar Rapids, has successfully bred cows with semen stored for 6 months. This same stud also is handling semen from "rapid-gain" Hereford bulls raised at the U. S. Range Livestock Experiment Station, Miles City, Mont.

Semen from these bulls is flown to a distributing point in the Western range country.

NOW THE ANIMALS CAN BITE BACK



INSECTS may get a surprise when they bite cattle one of these days. Instead of a nice morsel of blood and flesh, they'll get a killing shot of ~~poison~~ poison. Scientists are learning to use systemic poisons that circulate in the blood.

These materials remain active long enough to give protection for 2 or 3 months. Both injections and applications in feed have been effective.

NEW TEST FOR "HOW FAT?"

A NEW test shows how much fat an animal is carrying. Breeders now can select hogs with smaller amounts of fat or a bull that can pass on the ability to make a fast market finish.

A drug called antipyrine is injected into the bloodstream. The fatter the animal, the greater the concentration of the drug in the bloodstream. USDA scientists consider the tests accurate enough to prove the heritability of high- or low-fat producing traits.

The practice will be ready for farmers as soon as USDA researchers are sure they have a material that won't leave dangerous amounts of poison in meat. Dieldrin, Aldrin, and lindane were highly effective killers but too much remained in animal fat for safe eating.

Yearling cattle dosed at Kerryville, Tex., once a month were completely protected from cattle grubs, flies, fleas, ticks, lice, and mites.

R. D. Radeleff, USDA veterinarian, thinks systemic poisons will revolutionize control of livestock pests. Although the right poison hasn't been pinned down yet, he feels it is only a question of time until farmers and ranchers will be safely dosing livestock to help them "bite back."

HORNS COST \$9 PER STEER

BIDDERS kept hands in their pockets and eyes down when horned feeder calves were offered in a recent Missouri auction. When the last bid was in, the calves averaged \$2.17 per cwt. less than dehorned calves of the same weight and grade. That figures out to about \$9 for 400-lb. calves.

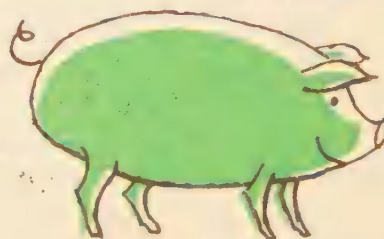
Virginia records on 22,000 feeders show that dehorning adds 1¢ per lb. to the value of calves, over 2¢ for yearlings.

DON'T MAKE HOGS WALK!



500-FT. WALK

IF YOU make a pig walk to water and feed, he just won't eat or drink as much. In a South Dakota test, pigs had to walk 500 ft. between water and feed. They drank 12% less water and made 10% slower gains than when feed and water were 20 ft. apart.



20-FT. WALK



SOWS POOR NURSES?—WEAN PIGS IN A WEEK

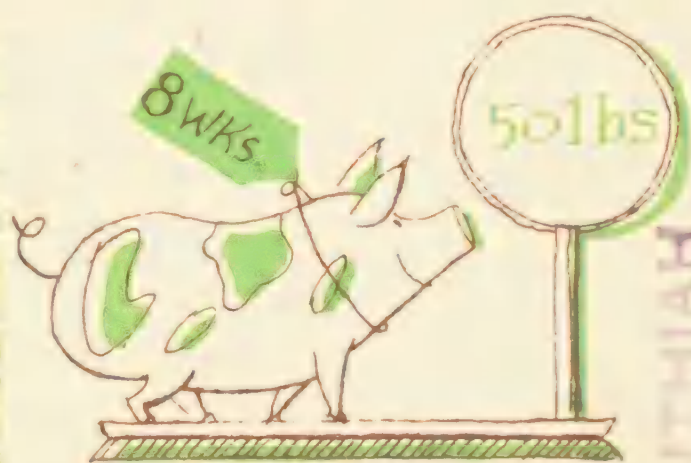
Sows will win no prizes as baby sitters, say Iowa State College researchers. Pigs weaned when a week old gained faster and got along faster without the sow. Fed a special pre-starter feed, pigs weighed 50 lb. at 8 weeks—10 lb. more than pigs nursing the sow. It's beginning to look like colostrum milk is the only thing the sow has to offer. So far, scientists haven't been able to replace it.

Under the Iowa State system pigs are farrowed in stalls to protect them from crushing. On the third day they get an anemia-fighting iron pill and their first taste of pre-starter. Pigs are

weaned at 7 days if they weigh 6 lb. Pre-starter is fed through the second week, then pigs shift to highly fortified sugar-pelleted starter. From 5 to 8 weeks they get a cheaper grower ration, and from 8 weeks to marketing they fatten on a standard ration.

Advantages of the system:

1. Costs are cut about \$1 per pig.
2. Pig losses are reduced as much as 25%.
3. The extra 10 lb. that pigs weigh at weaning is a \$2.50 bonus.
4. Sows lose less weight and can be re-bred for another litter 5 to 7 weeks earlier.



ROUGHAGE SAVES HOG FEED IN WINTER, TOO

RESEARCHERS say hay or silage will definitely cut feed costs when fed over winter—even though a hog doesn't have enough stomach to use large amounts of "canned" forage. Here are some test findings:

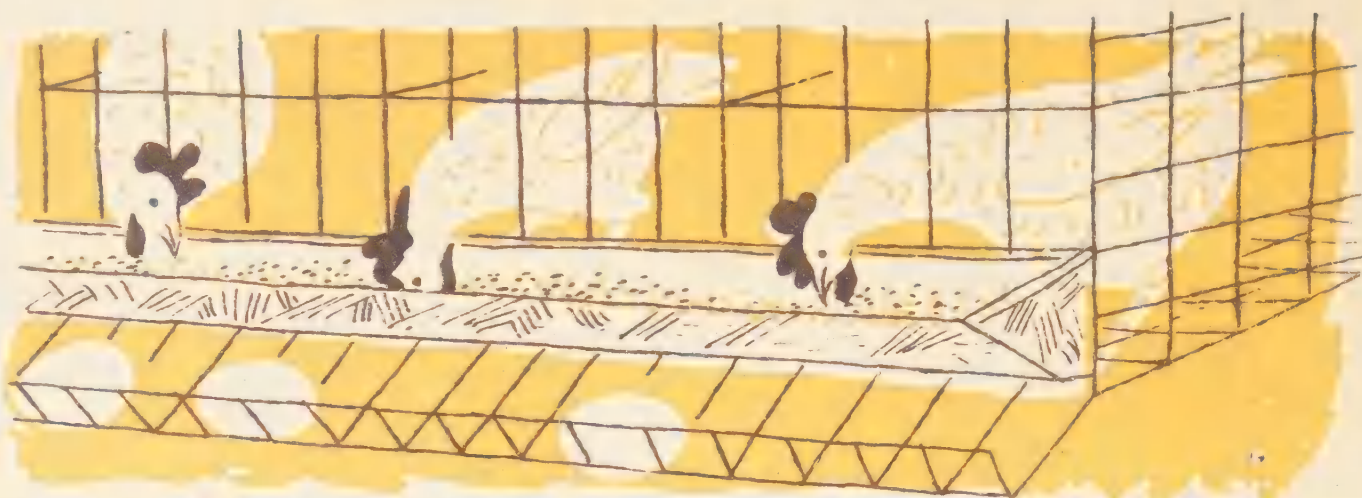
Grass Silage: Breeding gilts and sows at the Univ. of Minnesota get silage on Nov. 1 and all through the winter until the grass is green again. It is fed in flat-bottomed troughs, then covered with grain. Gilts eat 8 to 10 lb. per day. A group of 62 gilts fed under this system averaged 9.7 pigs per litter.

Ground Hay: When 10% alfalfa was added to the ration of USDA fattened hogs, every 2 lb. of alfalfa

consumed saved 1 lb. of concentrate. When ground soybean hay was used, 36 lb. saved 52 lb. of concentrate for each 100 lb. of gain.

Sun-cured Hay: Many farmers find sows produce more pigs when they self-feed high-quality hay in racks. A Wisconsin test indicates growing pigs can make good use of as much as 15% sun-cured alfalfa hay.

Alfalfa Meal: This popular feed ingredient supplies important nutrients for both pigs and sows. It can profitably make up about 5% of the ration of pigs and 15% of sows. In a USDA test, second-farrowing sows saved 86% of their pigs when they got the meal, 52% without it.



IN CAGES, HENS LAY—OR ELSE

FOURTEEN washers are strung on a wire in front of each wire cage in A. F. Bioust's chicken house at Stone Mountain, Ga. Each time an egg rolls out, he shifts a washer over to one side. Every 2 weeks, he counts the washers he's moved over. If there are less than 7, out goes the hen to the stew pot for failure to pay 50% rent. And another layer takes her "apartment."

That's the big advantage of hen cages. If an egg rolls out every day, you *know* the hen is working. You only *think* you know if you trust your eye in culling.

California's cage system for laying hens is spreading to states where snow piles deeply in the winter. Emil Swanson has used cages in northern Wisconsin for 10 years and swears by them. Only difference is that he stacks

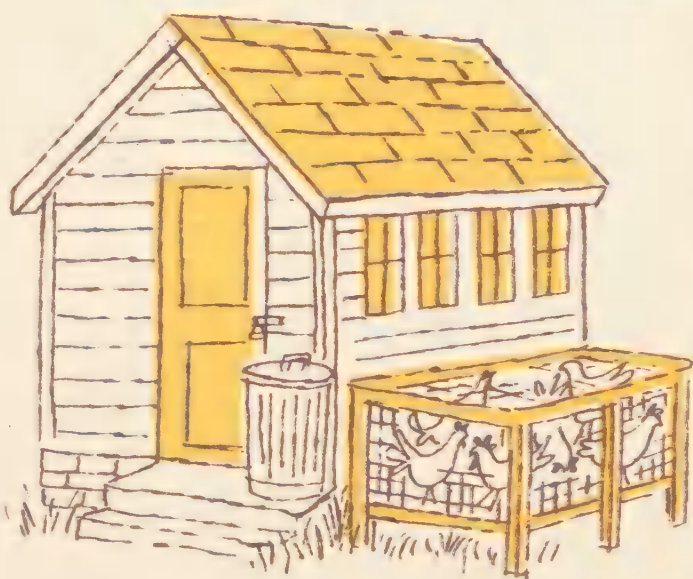
them inside a snug, heated house.

Birds in cages laid 240 eggs per year and had a 3 to 5% mortality in an Alabama station test, while sister hens on the floor laid only 200 eggs and had 18% mortality. Inside cage owners get all of the labor-saving benefits of the California plan but costs are a bit higher.

Bioust hung cages from the ceiling of his laying house. Two months after pullets were started, production was 80%. That's 10% more than he ever got on the floor.

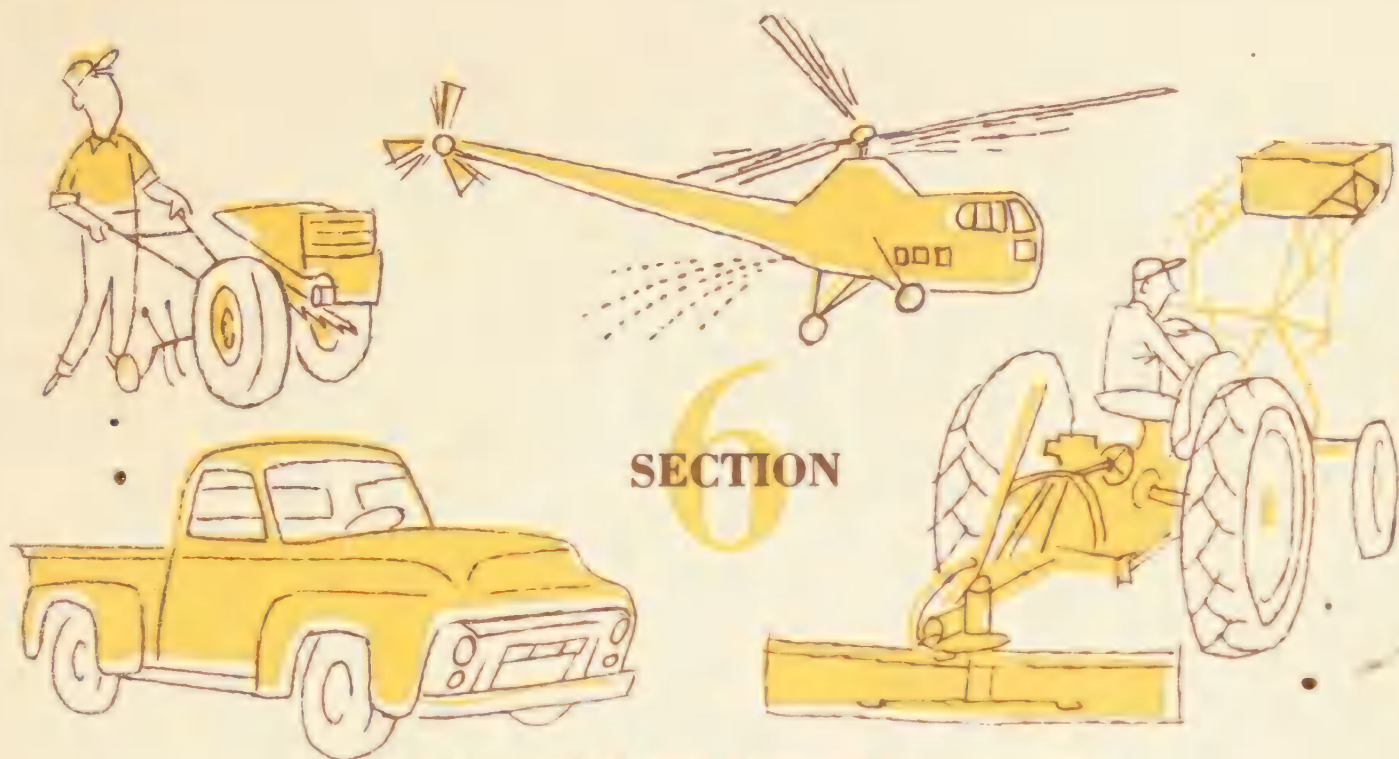
Cages cost \$1.50 each when installed for a 1,550-bird flock. The house cost \$2,400 even when built with home-sawed lumber. Bioust figures it takes about \$5.50 per bird to get started, but he expects to net \$4 per layer annually.

SMALL HOUSE FOR MEAT-AND-EGG FLOCK



A SMALL 25- to 35-hen house that will save labor, cut losses, and increase eggs has been developed by Oregon State College. It's only 8 by 12 ft., and 5 ft. high at the studs—ideal for family meat-and-egg flock. A wire porch gives birds access to sunlight.

Inside are eight wall nests, a self-feeder, and roost with dropping pits. The low-cost house has room to feed out 100 to 125 broilers. A big metal garbage can outside the door is handy for storing feed.



MODERN FARM MACHINES

IF YOU'RE average, you have the equivalent of 60 horses on your place—in tractors, electric motors, trucks, and automobile. That's more than twice as much as in 1940! A big rancher may have 1,000. Many Corn Belt farmers have more than 100. Even the suburban gardener has half a dozen mechanical horses to do his odd jobs.

If you want to have a nightmare, dream some night that all your mechanical horsepower (count it up) suddenly turns into real live horses—to be chased in from pasture, curried, fed, harnessed and unharnessed, and kept all winter. Sore shoulders must be doctored, broken harness fixed. A skittish 2-year-old may step on your foot when you tighten the hamestring—or a mule crowd you against the stall as you stoop to buckle a bellyband.

Such a dream would make you appreciate the vast mechanical power at your finger tips today. Farmers have far more power at hand than all of American industry!

This power—cheap power—has revolutionized farming. Yet ag engineers make these predictions for 1956:

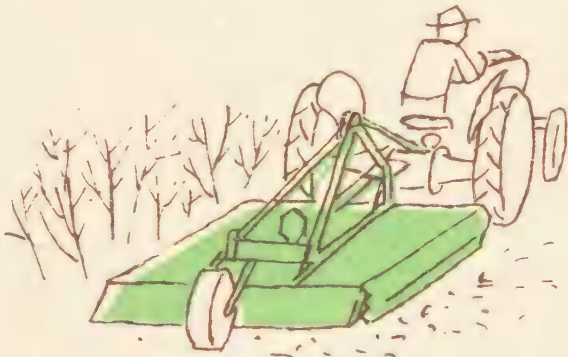
- You'll have twice as much power to do more jobs, and do them quicker, cheaper, and better.
- Garden tractors will be as common as hoes are today.
- Small grain will be protected from insects by high-frequency radiation; corn will be shelled as it's picked.
- Electric "thinkers" will take over your "worry chores"—watch for burglars, turn on poultry-house lights in early morning, warn you when your hay is heating.
- You will take your children to the zoo to see a horse.

SIX NEW FARM TOOLS

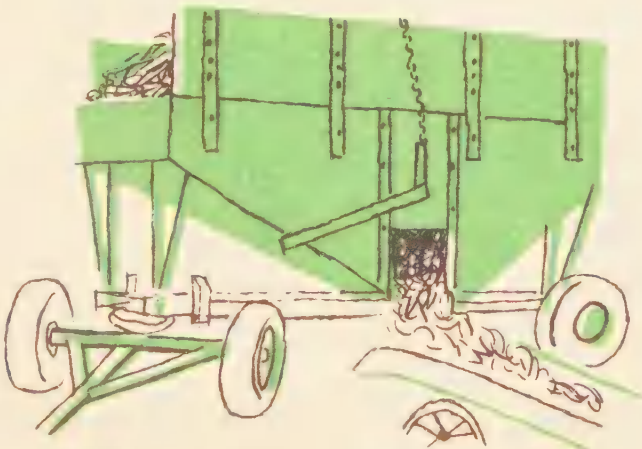
Ease Work, Save Labor, Cut Costs



1. Post Driver: Implement is driven from power take-off, will drive steel or wooden posts up to 8 ft. long and 6 in. in diameter. Can be used to tamp soil, drive shallow wells, or break concrete. A 200-lb. weight strikes 25 blows a minute.



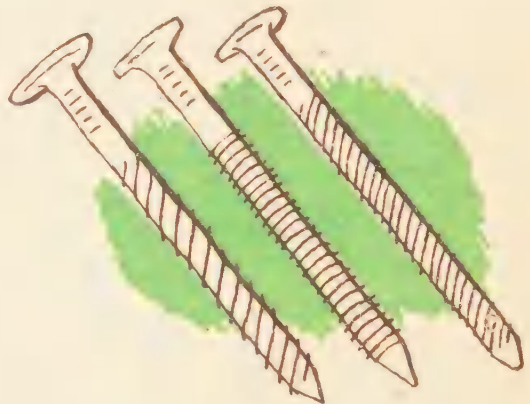
2. Rotary Cutter: Shreds corn or cotton stalks for surface mulching or easier plowing. Mows pastures and cuts brush, sprouts, and heavy weed growth.



3. Self-Unloading Wagon: Spills silage or grain into blower or elevator without tipping. Cheaper than mechanical unloader. Bottom slopes toward center and to side, where lever-operated door is located.



4. Brush Saw: Piggy-back saws weigh 25 to 35 lb. and ride on your shoulder. Powered by 1- to 2-hp. motors. Four-foot shaft enables you to cut brush while you walk. No stooping or bending. Saw costs \$200 to \$400.



5. Threaded Nails: Have 5 times holding power of plain nails.



6. "Stop Kick": Holds cow's leg stiff. As any milker knows, a stiff-legged cow can't kick. Made by Minnesota Creamery Co.

HOW TO SOLVE YOUR "WORRY" CHORES

LET automatic controls take over your "worry chores" and free your mind for more constructive things. "Never-forget" electronic marvels will automatically warn you when a sudden frost might nip your crops, or when thieves open the door of your chicken house. They'll check your windows, your brooder-house temperature, or the amount of feed left in the bin.

Cecil Toor, Bucks Co., Pa., never frets about his chickens, for he has automatic controls on the job. They turn on the lights and get the birds to work while Toor is still asleep. They operate the automatic feeder and turn on the fans when it gets too hot. Out on his poultry range other controls turn a revolving spotlight and energize an electric fence to discourage varmints, both animal and human.

The most common of the "automatics" is the thermostat found in almost every home. Another temperature controller has a sensing bulb that works in soil, water, or air. It's used to heat hothouse soil or to turn on heating or cooling equipment as needed.

Suppose you are drying grain or hay when the humidity suddenly rises above 50%. If the fan keeps going, you'll actually put water into the crop. An electric control will shut off the fan and turn it on again when humidity drops.

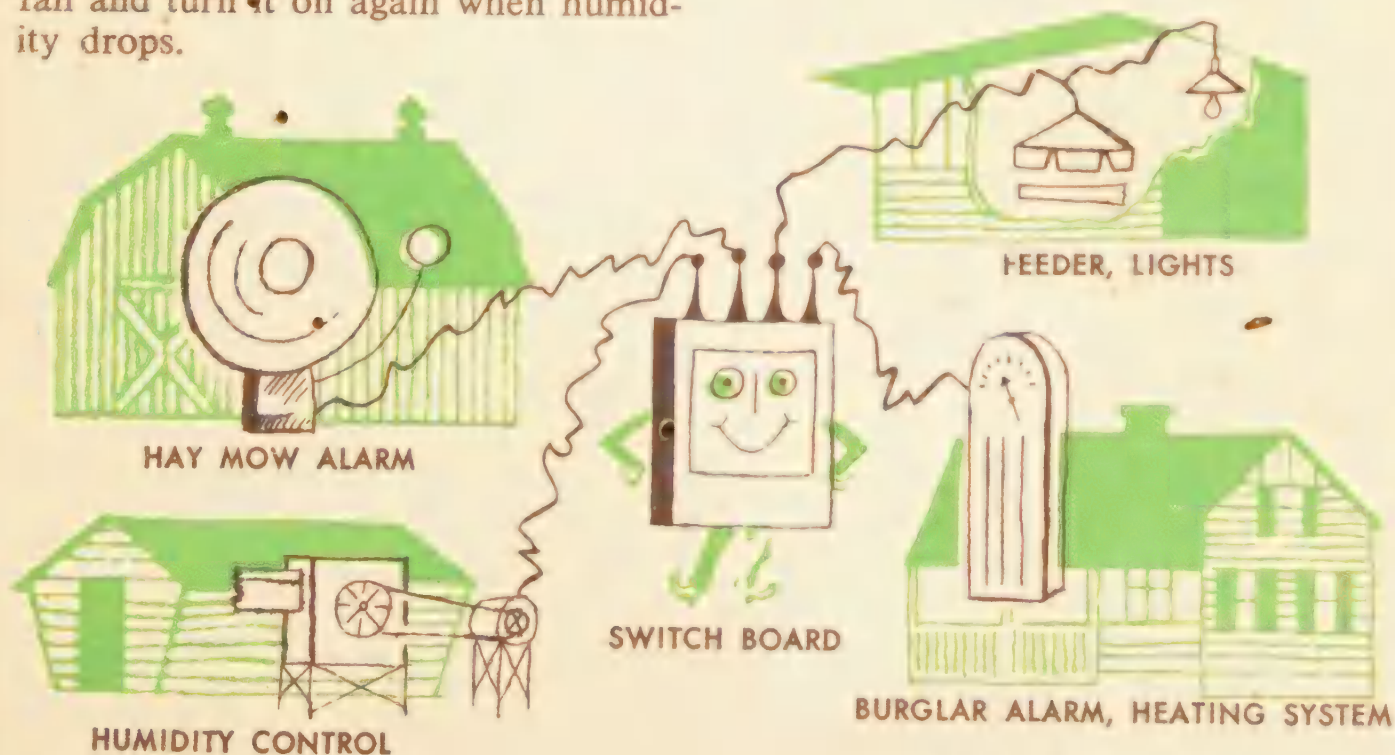
Damper motors are handy gadgets when teamed with a kick-off switch. They have a lever arm that can turn valves, open windows, and do all sorts of chores. A Texas poultryman has one hooked to his poultry thermostat. When it gets too hot, the damper automatically opens the windows.

Worry about burglars? Install a micro switch in doors or windows and connect it to an alarm. When the door is opened, the alarm rings. Or you can hook the switch to a brooder. When the door is opened the burner starts, warming the chill air you've admitted.

Clyde Hazen, a Yakima fruit grower, has an alarm in his bedroom connected to a thermostat. If the temperature drops near frost point, the bell rings and he knows it's time to start the smudge pots.

Herbert Towes, Orange Cove, Calif., uses an electrical switch to keep his hens cool. When the thermostat hits 95°F., a solenoid valve in his water line opens and sprinklers begin to spray the roof. Evaporation then keeps the hens comfortable.

These controls aren't expensive. One maker, Minneapolis-Honeywell, has models of timers and thermostats under \$15. Damper motors sell in the \$15 to \$25 bracket.



CROP DRYER FOR FARMS OF FUTURE

A SPECIAL crop-drying building may be a "must" on your farm in a few years. It will dry hay during May and June. It will handle small grain in July. It will dry soybeans and corn in the fall. H. D. Bruhn, Univ. of Wisconsin engineer, designed this building and thinks it's the coming thing. He cites these advantages:

1. **Work is easy!** Hay or grains can be elevated into the building. When they are dry, a false wall is winched forward, pushing the crop into a conveyor for the trip to storage.

2. **Capacity is high!** Bruhn figures his 20- by 40-ft. building could dry 20 tons of hay a day; it will hold 3,000 bu. of ear corn.

3. **Cost is low!** One dryer serves all crops on the farm. There are no expensive duct systems in hay mow or cribs.

4. **There's less fire danger!** If overheating occurs, you won't lose a big barn or crib; insurance costs will be much lower.

Heat is blown into the building at the back and rises through the slatted floor. There's much less loss of heat than in a mow, and the system is much faster than wagon drying.

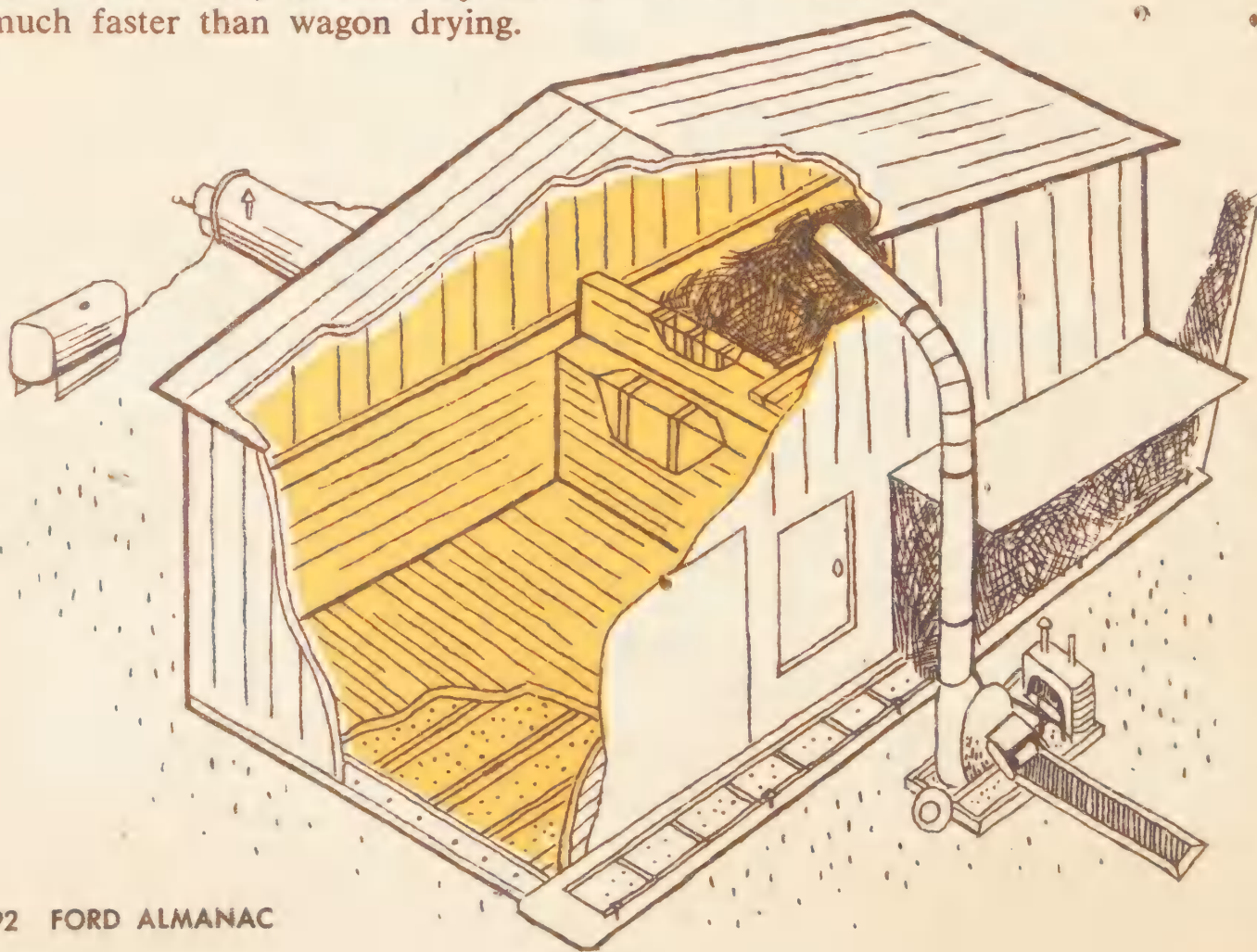
Sure, Crop Drying Pays

THE OLD question, "Does crop drying pay?" has been settled as far as these farmers are concerned. Listen to their testimony:

Small Grain: "Wouldn't be without my small grain dryer," says John Huisenga, Carroll Co., Iowa. "It saves windrowing and 4 bu. per acre of shatter loss every year and would save the crop in a wet season."

Corn: "I never again want to put an ear of corn in a crib. Team a picker-sheller with a dryer and you've got a miracle idea for labor saving," declares W. D. Delph, Madison Co., Ind. He starts picking on Sept. 15 and dries with LP-gas. He can cut 35% moisture corn to 12% for 5¢ per bu.

Hay: "Cows lick up every bite of my air-dried hay," observes Joe Hudek, McHenry Co., Ill. "It's wonderful feed." USDA experts agree, pointing out that 25% of the feeding value of hay often is lost in harvest. When leaves stay on the hay until it gets to the bunk, protein content may be 4 or 5% higher.

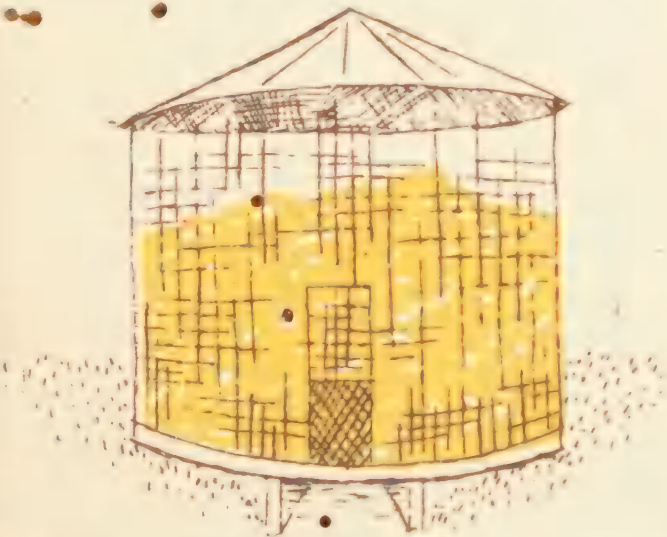


MAKE GRAVITY YOUR HIRED HAND

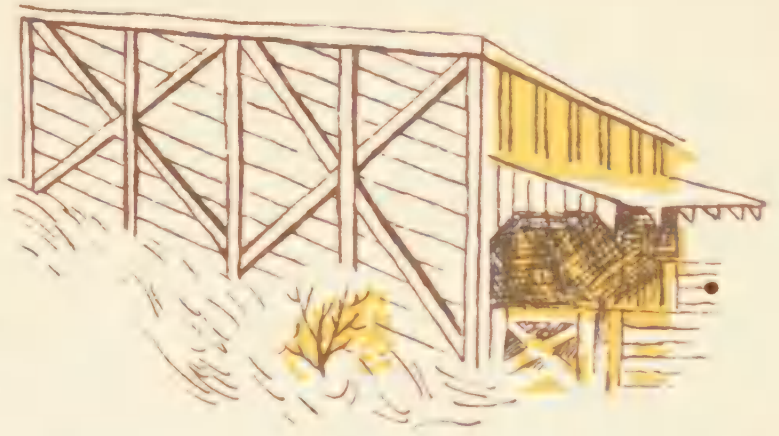
WHEN that apple fell on Isaac Newton's head, he didn't know it but he'd just discovered a new hired hand for farmers called gravity. When harnessed, it works on the job 24 hours a day—all for free! Gravity pulls down vertically, of course. But team it with an inclined plane and it will move grain or roughage horizontally too. Here are four ways in which this law of nature is serving farmers:



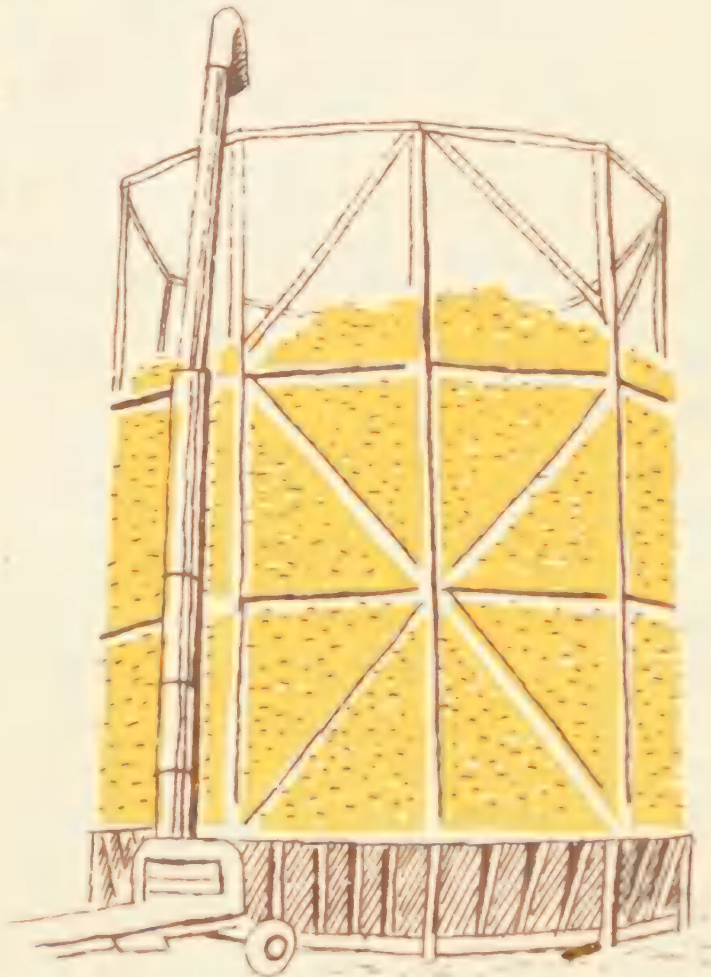
Self-Feeding Corn: Feeders with an inverted V through the center can supply hogs or cattle for days without attention. Put manger 1 ft. above ground for hogs; 2½ ft. for cattle. Shelter from weather.



Self-Unloading Bins: Otto Orschell, Wayne Co., Ind., puts his round corn bin on a block foundation high enough to drive under. He opens the door and ears roll into his wagon. Inverted-V dividers in corn cribs and overhead bins, too, are work-savers. Or you might use a trapdoor in the bottom.



Harness Hillside: When Bernard Dunn, California rancher, put his hay feeder on a hillside, gravity took over the feeding chore. Hay slides down a 37° slope to a self-feeding gate. The 40- by 112-ft. building stores 450 tons of chopped hay.

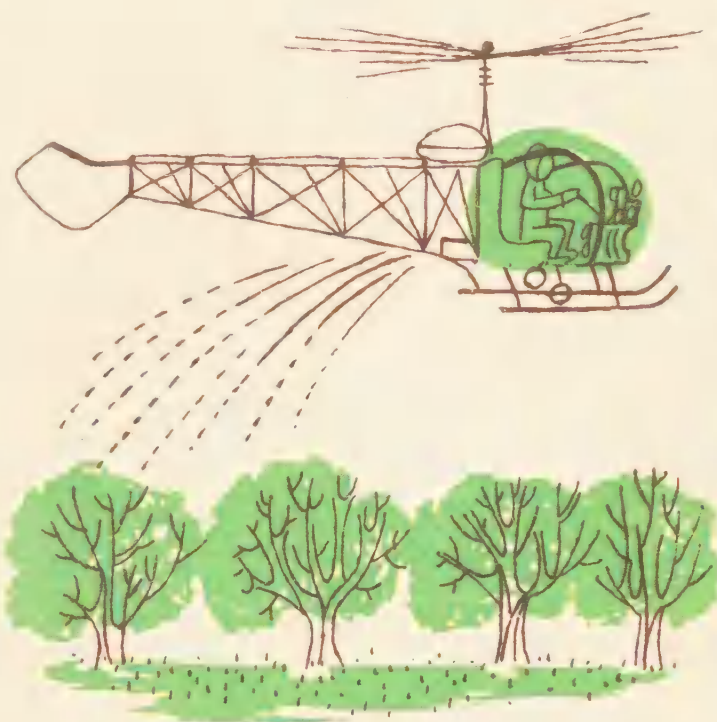


Hay Self-Feeder: This, at Iowa State College, is a vertical wire cage. A blower fills it and gravity does almost all of the feeding. There's a little hand work as hay nears the bottom. It's a cheap way to store hay and an easy way to supply the cows with winter feed.

HELICOPTERS HERD CATTLE, SPRAY ORCHARDS

RANCHERS and orchardists who've used them predict helicopters will give airplanes some real competition as a farm tool.

Zacaweista Ranch in Texas has a 'copter that's "worth 15 or 20 cowboys working in heavy brush." The pilot maneuvers his ship over mesquite, flushing cattle into the open where horsemen can handle them. Fence riding is another air chore on this big ranch. When a break is spotted, the pilot lands alongside and puts a hand to work on the repairs. And can you think of a better way to inspect water holes and herds?



Helicopters are ideal for orchard work. The swirling rotor down-blasts 2 million cu. ft. of air per minute to carry spray to all parts of the tree. Speed can be slowed to apply any desired amount of spray. Airplanes must fly faster and higher. That limits their effectiveness.

Because helicopters are very expensive, they will probably be hired on a custom basis. In Connecticut orchard tests, the 'copter applied hormone sprays for \$7 per acre. It cost \$10 to \$15 to do the same job with ground equipment.

AIR TRACTOR HELPS, TOO

A NEW squat, slow-moving biplane designed for crop dusting and spraying has been dubbed the Air Tractor by its designer. Built at Yakima, Wash., this plane is safer and more economical than war-surplus trainers. It will carry 2,500 lb.—twice the payload of most crop planes.

Safety is a feature, too. The plane takes off at 45 mi. per hour and lands at 35. With flaps down, it works at 75 mi. per hour. It gets good coverage 35 to 40 ft. above ground. Double wings give the pilot more control than with a monoplane.

YEAR-ROUND PLANE JOB

WALT SNIDER's airplanes work a longer season than most farm tractors. He starts out in early spring spraying nitrogen and other fertilizers. Next comes oat and clover seeding. Later the Huntington, Ind., flier helps farmers fight their insect enemies. Last summer he dusted for sweet-clover weevil, corn borers, and spittlebugs. In early fall Snider seeds rye, covering 25 to 30 acres per hour. Soybean defoliating is a project for September and October.

How about winter? Well, that's the slow season, but Snider thinks it won't be long until planes will be spreading de-icing chemical on highways and farm roads.

SEED CROPS FROM AIR

YOU CAN'T beat a plane for seeding cover crops in corn. With new calibration equipment pilots can accurately spread 1½ bu. per acre to give a thick, even stand.

Thirty farmers in LaGrange Co., Ind., got together and hired a pilot to cover 500 acres. This cost them only \$1 per acre, but when winter rains came along, soil was anchored with a lush stand of rye.

DON'T LET IT HAPPEN TO YOU!

WHEN TRACTORS replaced the horse, they also took over as the biggest cause of farm accidents. Trouble is that most folks don't realize how dangerous today's fast tractors can be.

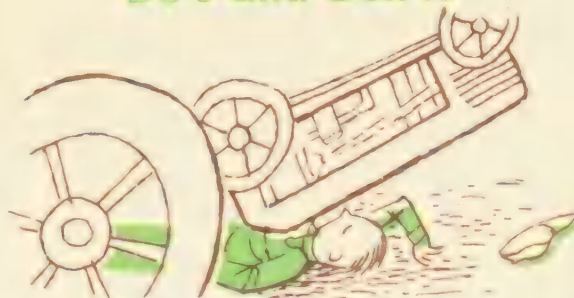
Univ. of Nebraska safety experts have worked out a demonstration that's an eye-opener. Using a machine controlled by ropes, they show how easy it is to tip a tractor.

First they fasten back wheels to a log to simulate what happens when you get in small ditch or when the drive wheels are frozen to the ground on a cold morning. When the power goes on, the tractor turns instead of the wheels. It flips over, crushing a "dummy" driver. A load hitched too high does the same thing.

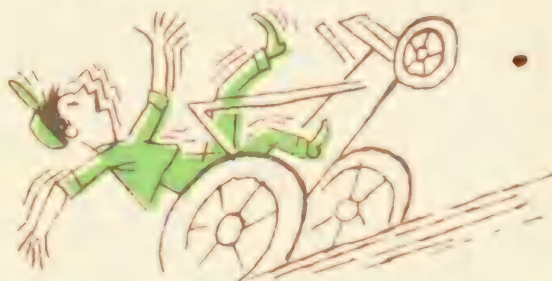
Ramps with only a few degrees of slope will tip the tractor—just as steep slopes and ditch banks will. In another test a tractor in road speed tipped when it hit a small block while turning. Another went over when inside wheel brakes were used on a turn.

You think tipping doesn't happen very often on the farm? In May, June, and July last year, 84 tractor accidents were reported in Iowa alone, with 24 of them killing the driver. Almost half of them, 39 accidents, were caused by tipping.

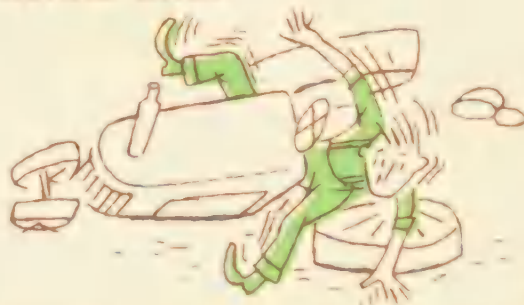
Do's and Don'ts



When rear wheels are stuck, back out or get a tow. If wheels can't turn, tractor will—flipping over backward, crushing the driver.



Never work with a tricycle tractor around steep ditches, and be careful on sidehill fields.



Slow down when you make a sharp turn. And never use wheel brakes at high speed.

SLOW DOWN—THERE'S A TRACTOR AHEAD!

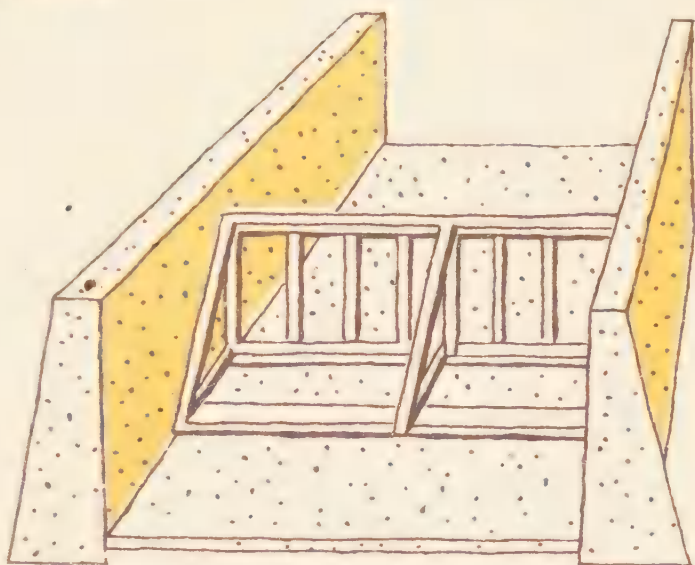
FAST-MOVING cars and slow-moving tractors are bad highway companions, particularly at night. That's why Lester Franks, Portland, Ohio, put a flexible red light on his tractor. It has a strong spring in its shank, and it vibrates back and forth warning cars there's danger ahead.

Slow tractors are a hazard on hilly roads, too. That's why Plymouth Co., Iowa, 4-H boys have been putting high-flying red flags on tractors. They warn motorists of tractors hidden over the hill.

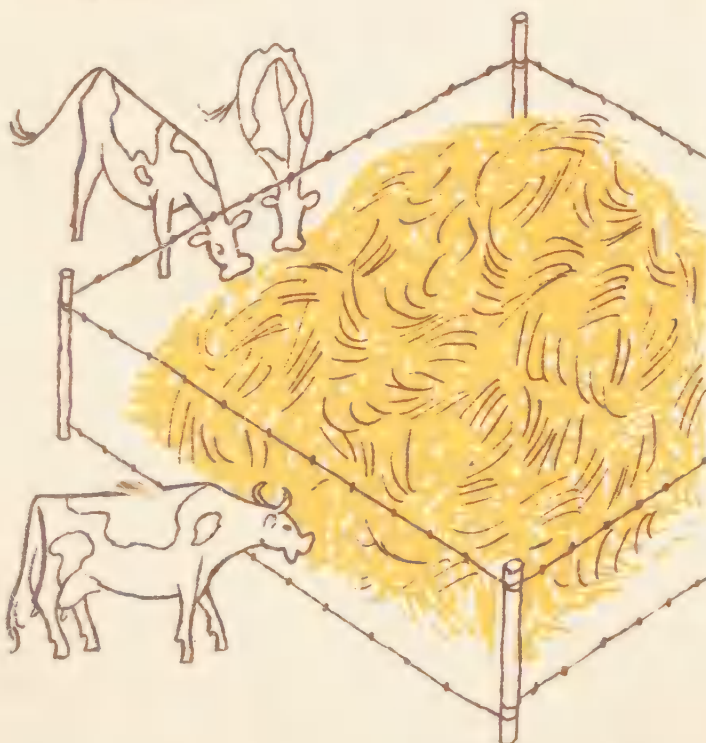


FOUR WAYS TO SELF-FEED SILAGE

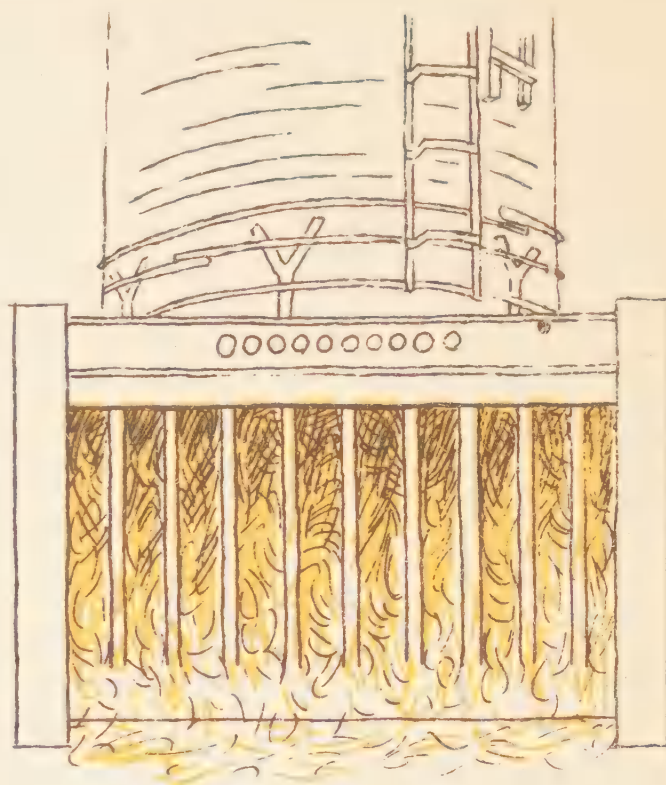
THERE'S no sense in pitching silage these days—let the cattle do the work. Trench or horizontal silos are easiest to rig for self-feeding, but self-feeding can be arranged in uprights, too. Sketches show how the job is being done.



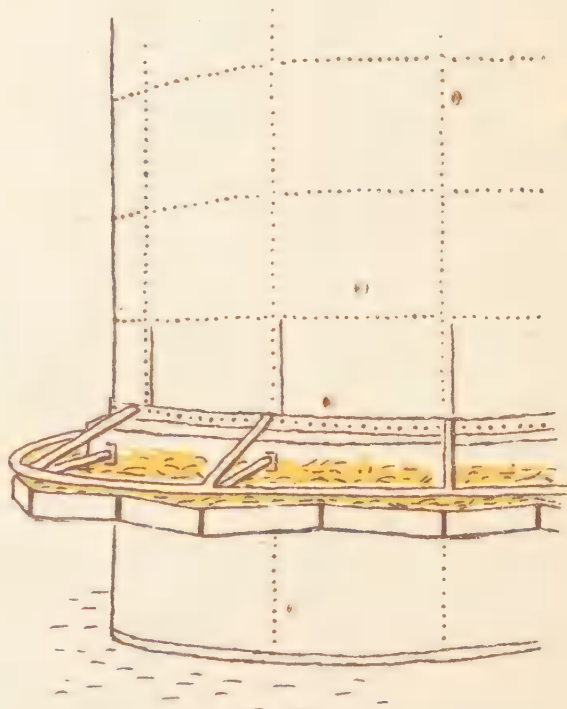
Trench silos can be fitted with a self-feeding gate similar to this, designed by Univ. of Missouri. Gates usually are hung on a pipe across the silo or are on runners that can be pushed forward. Don't try to self-feed in a dirt floored silo—you'll soon have belly-deep mud.



Box silos or above-ground stacks can be rigged with self-feeders. Some use simple fence arrangement; others, electric fences.



Upright silo can be fitted with self-feeder. Wide A-frame in base spreads silage. Pointed posts through silo keep grass from dropping too fast.



Power unloader throws silage into rotating feed bunk on Conner Prairie Farm, Noblesville, Ind. Bunk turns 3 in. per second on 10 rubber-tired wheels. It takes 25 revolutions to get a day's supply of silage.

SIX NEW JOBS FOR YOUR ELECTRIC SLAVE

ELECTRICITY is doing more and more jobs on the farm. Here are six new ones:

Dig post holes: A ½-inch drill will turn a post-hole digger; same tool can operate a good-sized grain auger.

Kill bugs: Insects like corn borer, pink bollworm, and other cotton pests are attracted by lights, then are trapped and killed. Interesting notes: Differently colored lights attract different kinds of bugs. And some lights repel them. (These are the ones you want for your lawn party.)

Grade lemons: By the use of "electric eyes," electronic sorters can sort lemons into five different grades.

Find tramp iron: Use electrical magnets in blower pipe or elevators to catch stray pieces of metal that might hurt livestock or wreck machinery.

Make hens lay: USDA researchers have found that ultraviolet lamps have made hens lay 10 to 19% more eggs than a control group in an artificially lighted room.

Electrocute weeds: Weed electrocutors kill Russian knapweed and morning

glory. If uncontrolled, these smother California crops worth \$300 an acre.

Kilowatts Cheaper Than Man-Hours

IF YOU ran an ad like this in the local paper, would you get any applicants for the job?

FARM HELP WANTED

MAN who never gets tired, never sleeps, never eats. Will pay 5¢ for each of the following jobs: milking 50 cows, pumping 1,000 buckets of water, shelling 75 bu. of corn, and loading a ton of manure. Monthly wage: \$10 to \$15 for the right man who will stay on job 24 hours a day.

We can think of only one taker: your local electric company. It has a slave willing to work for the wages mentioned. Kilowatt-hours will do the job better and often cheaper than man-hours.

THREE REASONS WHY IT PAYS TO CHECK WIRES

IF YOU'VE added several electric motors recently, chances are your wires are overloaded. That means three things: (1) danger of burning out; (2) loss of electricity; (3) unsatisfac-

tory performance of equipment. Have your local power representative check.

Here's a table which shows how much electricity you lose if you're underwired:

MONEY IS LOST HERE

Wire Size	Length of Run (feet)	Load (amperes; based on name-plate rating on equipment)	Loss (based on 500 hours of use at 2¢ per kw.-hr.)
#14	200	15	\$2.40
#12	200	15	1.44
#12	200	20	2.56

YOUR BEST BUY MAY BE DIESEL

MANY farmers who use tractors 500 to 1,000 hours a year are finding their best buy may be diesel.

Diesel models ordinarily cost about 25% more than gasoline-burning tractors, but there's one model available which is almost as cheap as a 3-plow gasoline tractor. Higher cost of diesel is offset by the big fuel savings—up to 40 or 50%. A diesel engine takes only about $\frac{2}{3}$ as many gallons, and the fuel is usually much cheaper.

Robert Keppel, Minnesota engineer, figures that when diesel fuel costs 4¢ less than gasoline, and the tractor is used 700 hours a year, then a diesel and a gasoline-burning tractor are about equal in cost of operation. If diesel is 6¢ a gal. cheaper, this equilibrium is reached at 500 hours. If diesel fuel is only 2¢ cheaper, it takes 900 hours of operation to make costs equal.

Nebraska engineers list these ad-

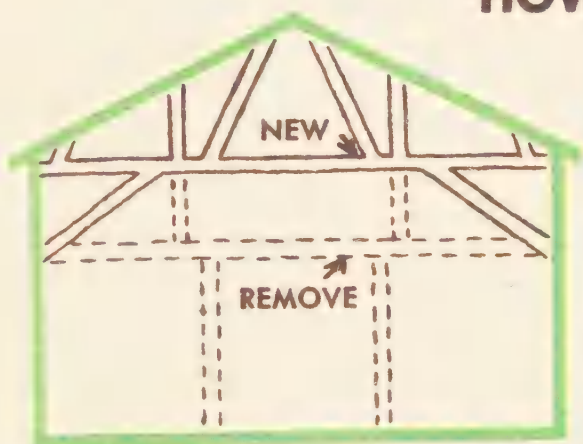
vantages for diesel: Higher engine efficiency; best part-load economy; low fire hazard in handling and storing fuel; long engine life.



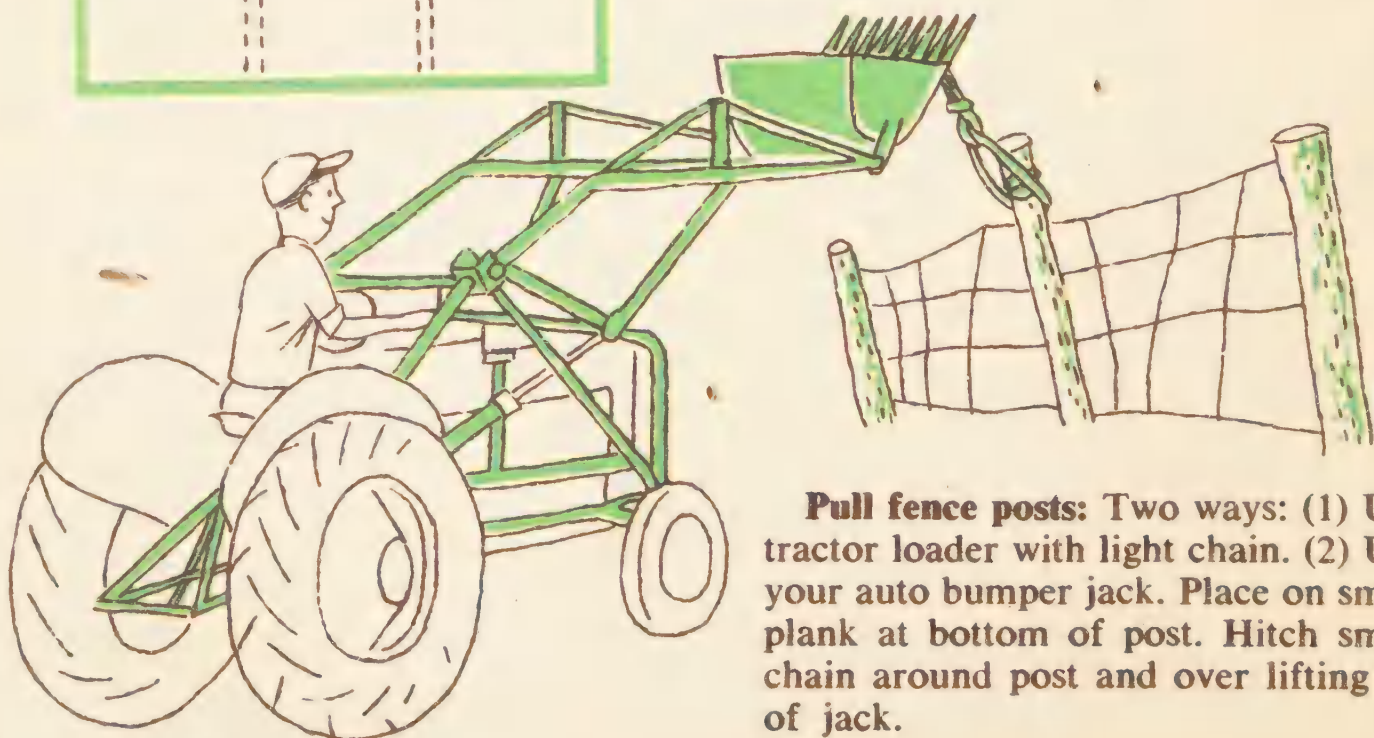
Milking Machine Pays

A milking machine can pay for itself if you have as few as 8 cows. It will save almost an hour every day, perhaps 336 hours per year. Cost of a machine for an 8-cow herd is about \$7 per animal. So if your time is worth \$1 an hour, that gives you a net saving of \$280 annually. Of course the more cows you milk, the less your milker costs. For 15 cows, the charge should be about \$4, and for larger herds it drops to \$3 or less.

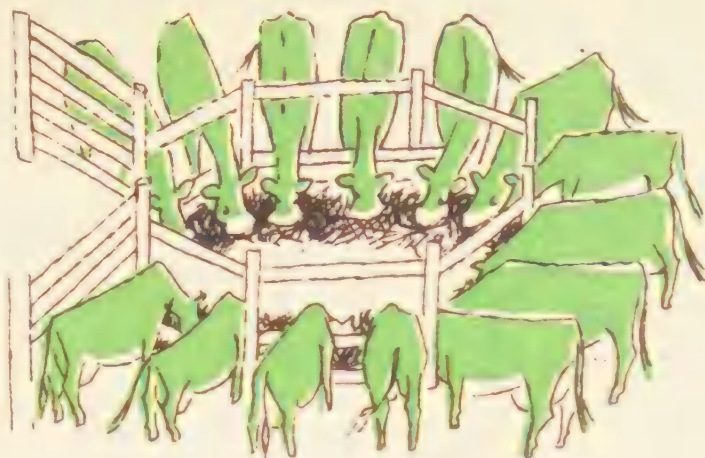
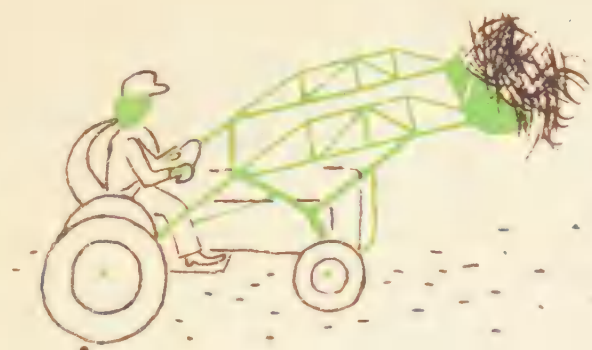
HOW TO DO IT



Remove in-the-way posts in your barn which hinder use of tractor equipment. Sketch shows how Univ. of Nebraska engineers advise you to brace building.



Pull fence posts: Two ways: (1) Use tractor loader with light chain. (2) Use your auto bumper jack. Place on small plank at bottom of post. Hitch small chain around post and over lifting lip of jack.



HOW TO GET OUT OF THE MUD

BARN-LOT MUD makes you tired and cranky—and costs you money. In one Iowa test, steers in belly-deep mud gained 15% slower than those fed on concrete. Mudders took more corn, too—an extra 2 bu. for each 100 lb. of beef.

That's why ag engineers say concrete will quickly pay for itself.

A properly made slab will last 24 years and cost you less than 40¢ a steer, 15¢ a hog, and 75¢ a dairy cow.

A good floor should save you \$2 worth of manure for each steer you feed out.

You need 25 to 40 sq. ft. of pavement for each steer; 15 per hog; and 50 to 75 per dairy cow. Here's how to build it:

1. Rough-grade lot so it is smooth and slopes away from buildings.

2. Use 2 x 4's for forms and stake off in 10-ft. strips.

3. Mix 1 part cement with 2¼ parts moist sand, 3 parts gravel. Limit water to 5 gal. per sack of Portland cement.

4. Strike off level with a board, then use a push-broom to get a non-slip surface.

5. When concrete has set enough not to mar, cover with straw and keep moist for 5 days.

NOTE: Ready-Mix is a work-saver, if you can get it. It costs about \$15 per cu. yd. delivered a few miles. That's enough for 80 sq. ft., 4 in. deep.

SEVEN JOBS FOR YOUR FARM SPRAYER

SPRAYERS work more days than plows on many farms. That's because they can do so many jobs, spread through the entire year. Jack Brinkley, Elk Grove, Calif., mounted a sprayer on a jeep and found it was the "busiest thing on the farm."

He has a 42-ft. boom on the sprayer for field jobs, then can use a hand boom or a nozzle for close-in work. Jobs he's found for the sprayer:

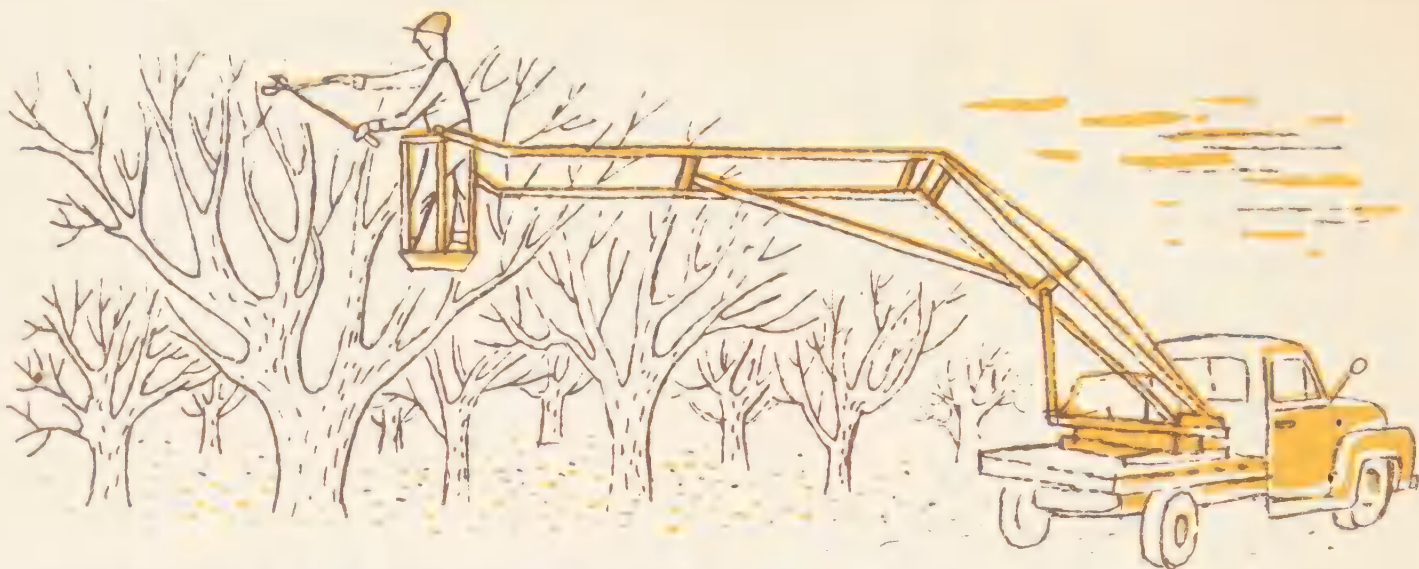
1. Field fertilizing with liquids.
2. Killing weeds in crops.
3. Defoliating legumes.
4. Killing insects.
5. Fighting grass fires.
6. Protecting fruit trees.
7. Cleaning buildings and equipment.

Other farmers like simple sprayers mounted on trailers or on the tractor. Used with the new herbicides, insecticides, and fertilizers, they're getting to be a "must" along implement row.

Small Farm Sprayer

SMALL FARMS can have an all-purpose sprayer too. You can get knapsack sprayers from 1 gal. up to 5 gal. sizes. If they're too big, an overgrown hand fly sprayer will do the job. You can use them to kill fruit-tree pests, flies, mosquitoes, chiggers, and a host of rose enemies. They'll also kill weeds just as efficiently as bigger-powered outfits.

P.S. It's a lot easier than hoeing.



TOMORROW'S MACHINES IN FARM SHOPS TODAY

MACHINES of tomorrow are being hammered out in farm shops today. Ingenious farmers tinker until they get something to do the job better, easier, or cheaper.

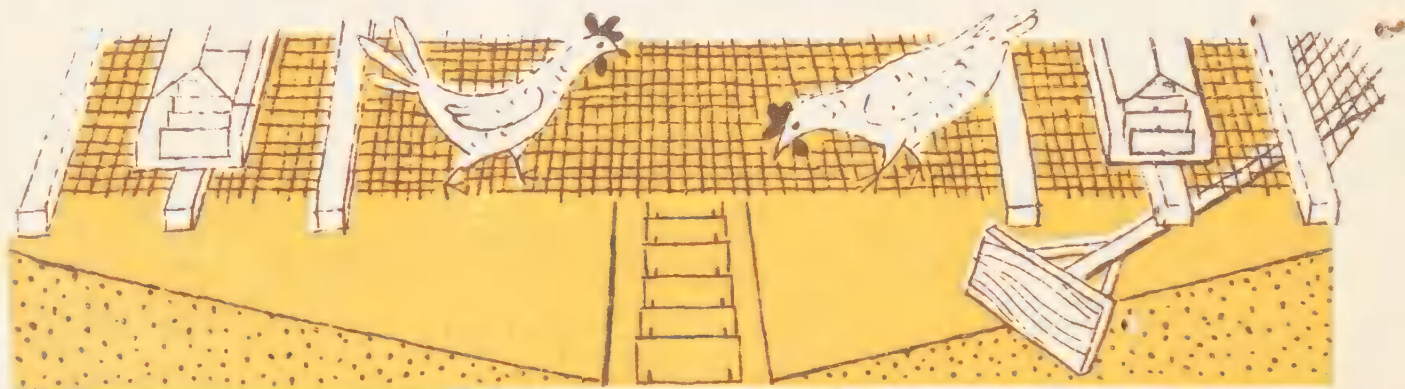
A. N. Barney, Bridgeport, Conn., built this Super-Man platform which makes it easy to prune, thin, or pick fruit from any size of fruit tree. It's powered by three hydraulic cylinders.

Irving King, Tuckertown, R.I., took old sewing machine parts and built a triple-threat tool: It debeaks broilers, to prevent cannibalism. It vaccinates them. And it injects hormones—all

at the rate of 200 broilers per hour.

William Rust & Sons, Sargent Co., N. Dak., mounted a grapple fork on the manure-loader attachment for their tractor. In 15 minutes they can pull enough hay out of a stack to load a rack—and they unload it the same way. They also use it to stack hay.

When Walter Ehler, Dinuba, Calif., found his cows reluctant to move into the milk parlor, he rigged up a squeeze gate powered by electricity which herds the cows into the parlor.



Let's Swap Ideas!

"I GET my best ideas by visiting other farms," a highly mechanized farmer told us recently.

Example: He had seen a gutter cleaner in a dairy barn. He took the idea, making a few changes, and now the moving paddles of a gutter cleaner spread silage down a long bunk to feed his beef cattle.

Poultry and hog men have adapted these same gutter cleaners to their

needs. And dairymen have learned from others, too. They've taken the automatic feeders used by poultrymen and put them to work feeding cows.

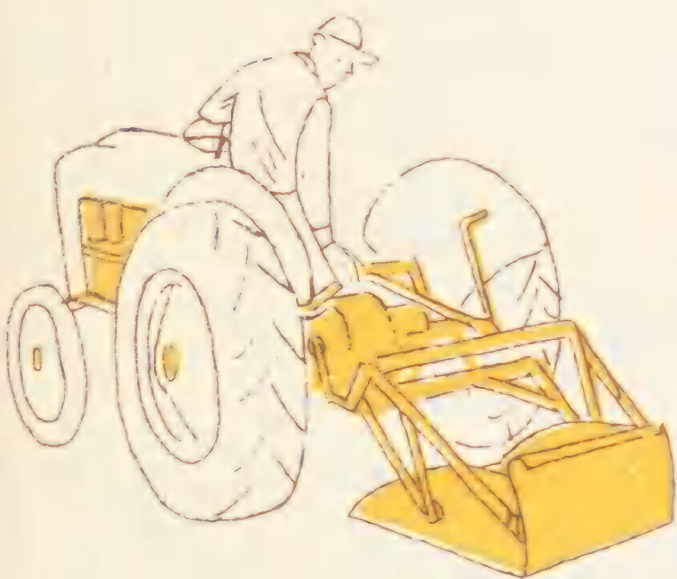
Beef feeders have long used the tractor blade to clean up their feedlots. Dairymen are now using blades to clean their barns and loafing pens.

"Farmers always find more uses for a machine than we figured on," says a research engineer.

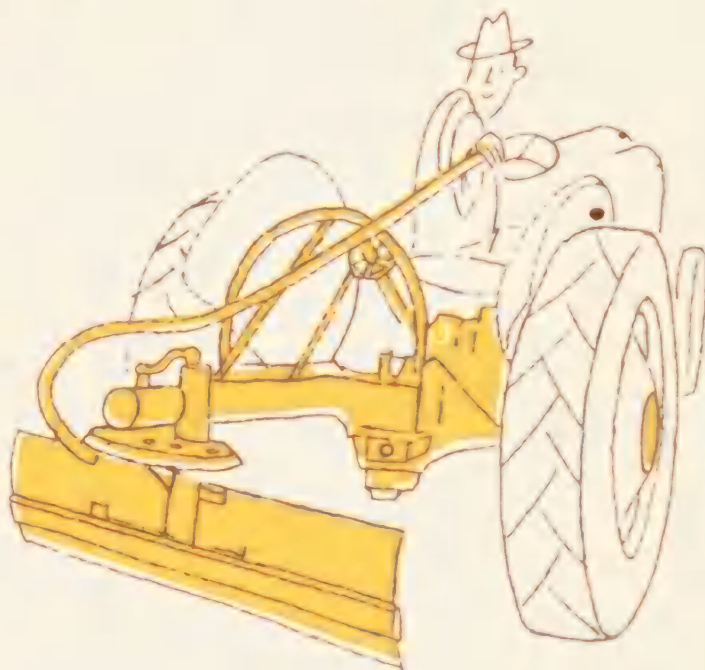
MACHINERY MAKES YOUR PAY CHECK BIGGER

ON THE family farm, net profit is determined by how much the farmer can get done. Farm records show many farmers end up with a labor income of 25¢ to 35¢ an hour. One reason is that they spend too much of their time on chores and have little left for more *productive* work.

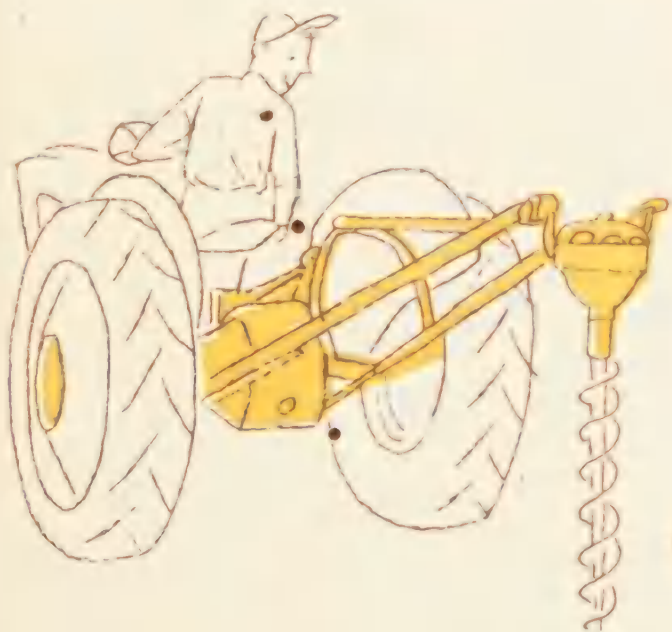
Today's tractor—its reputation well made for doing such conventional jobs as plowing, seeding, and harvesting—is a whiz at chores, too. For example: Here are four implements powered by a tractor and designed to shorten chores and take out the back-ache:



Scoop helps you build ponds, dig trench silos, make ditches, build terraces, level land, fill gullies, and carry heavy farm supplies.



Blade can be used to clean feedlots, bulldoze dirt, build and maintain farm roads.

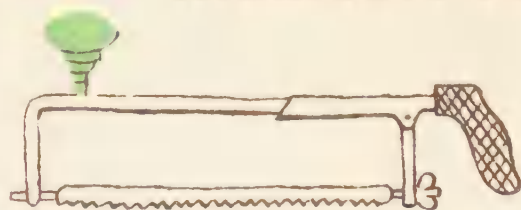


Post-hole digger puts down holes in a hurry. Can also be used for digging holes for tree planting and excavating for footings.



Loader is used for scooping manure, loading grain, lifting fertilizer, carrying concrete, and a dozen other back-breaking and time-taking tasks.

SHORTCUTS FOR YOUR FARM SHOP

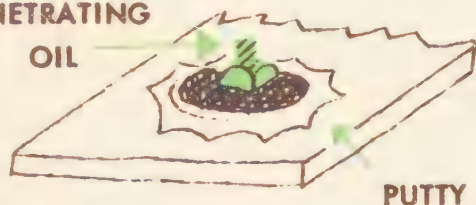


Hacksaw is easier to handle if you weld a doorknob to it for a left-hand grip. It will save blades and cut your working time.



Handy tool holder keeps tools easy to reach. Use an old glove nailed to the bench. It's ideal for screwdrivers, punches, and other hand tools.

**PENETRATING
OIL**



PUTTY

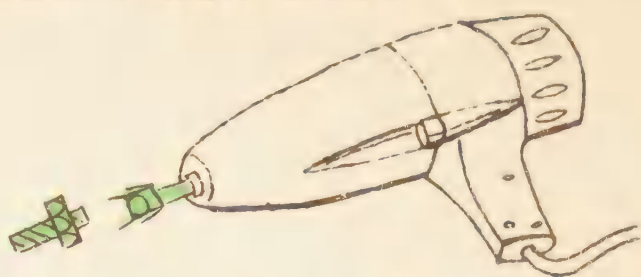
Build dam of putty around frozen nuts. Fill with penetrating oil and leave for a few hours. This will loosen bolts completely covered with rust.



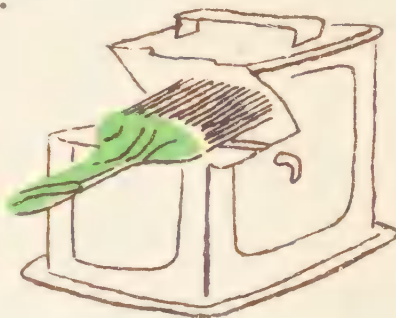
Save your thumb when starting small brads or tacks. Rub a strip of metal across a horseshoe magnet to charge, then use it to hold tack until you can get it started.



Split hose makes a safety guard for your ax, saw, and other tools. U. S. Forest Service uses this type of guard on axes.



Impactool will do all sorts of shop jobs. It will run and remove nuts and screws, ream, tap, and operate wire brushes and hole saws. There's no kick or twist, even on the toughest work.

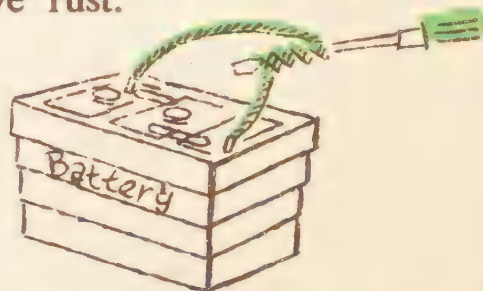


No-drip paint can is made from an old gallon container. Cut as shown, then put a rod through the can to hold the brush. Use rod to wipe off excess as you dip the brush.



FILED NOTCHES

Threading dies can be easily made by cutting three grooves inside a nut with a triangle file. Then case-harden. Make in several sizes and they'll be ready to repair battered threads or to remove rust.



Magnetize your screwdriver so it will hold screw when you're working in a tight place. Using flexible insulated wire, wrap a dozen turns around end of screwdriver, then touch bare ends of wire to posts of your automobile battery. It takes only a touch to magnetize screwdriver.

SEVEN WAYS TO SAVE LABOR IN FEED LOTS

IT TAKES a lot of work to feed cattle. A steer may eat 1 ton of corn and 3 tons of silage during the fattening period. When labor was cheap, many farmers scooped corn twice—handled the silage three times to get it from crib and silo into the feed bunk. This 12 tons of hand work per steer put plenty of muscle on the hired man—but no more meat on the steers.

Here are seven examples of today's trend to more brains and less brawn in the feed lot. Sure, some of these mechanical chore savers are costly, but if they replace a hired man or increase the number of livestock you can feed yourself, they'll pay off quickly.



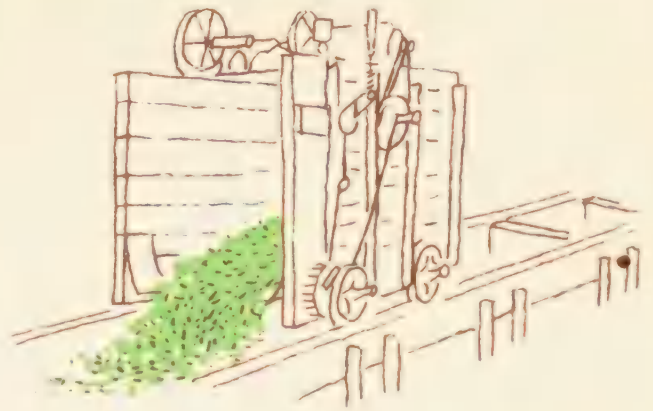
1. **Tractor Scoop:** Digs trench silage, then carries it to bunks.



2. **Hay Carriers on Tracks:** Make a handy "elevated."



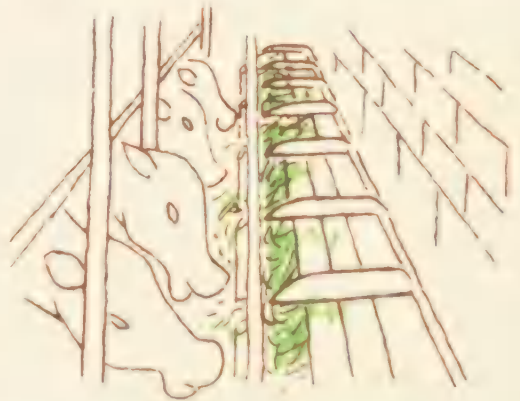
3. **Self-unloading Wagons:** Do both hauling and feeding chores.



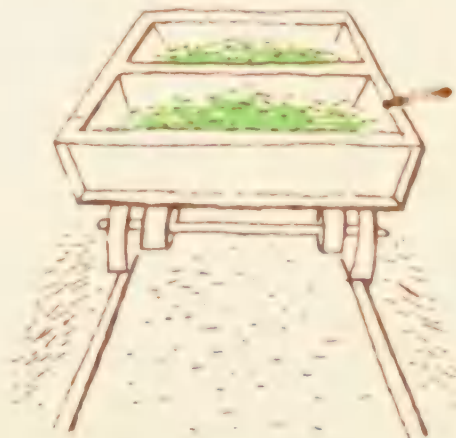
4. **Carts Rolling on Bunk "Rails":** Dump grain or roughage.



5. **Blower:** Works year 'round when it chops and moves feed.



6. **Barn Cleaner-conveyors:** Are good workers. Elevators help too.



7. **Feed-lot Railroad:** Hauls feed, then doubles as bunk for cattle.

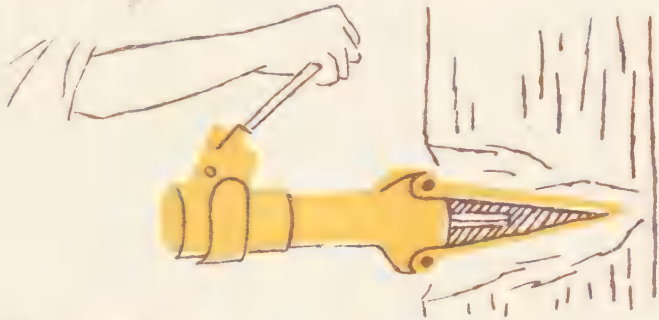
MACHINES TAKE TO TALL TIMBER

HE CAN tip over trees with 45-ton force. . . . He can whack up the mightiest tree after supper. . . . He can pick up the biggest logs, saw them into lumber, and season this in a jiffy.

Who? Paul Bunyan?

No—you, the average woodlot owner, using the tools and machinery developed to take the grunt and groan out of woodcutting.

Here are some of the tools that give you Paul Bunyan powers:



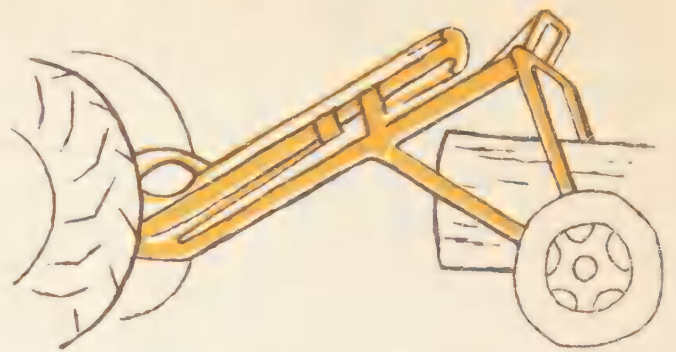
1. Hydraulic Wedge: It exerts 45-ton force, can tip a tree in any direction and save lots of extra sawing.



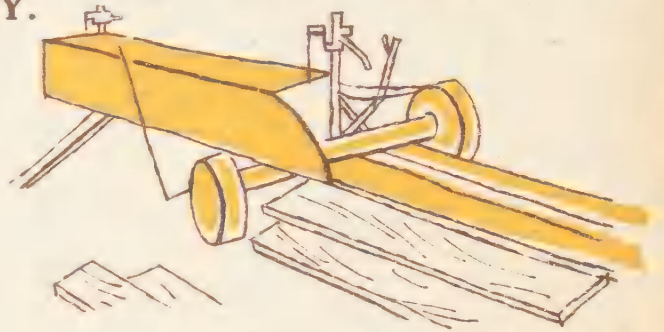
2. Chain Saw: Powered by gasoline or electricity, it makes quick work of cutting up a tree. It's the key to making your woodlot profitable.



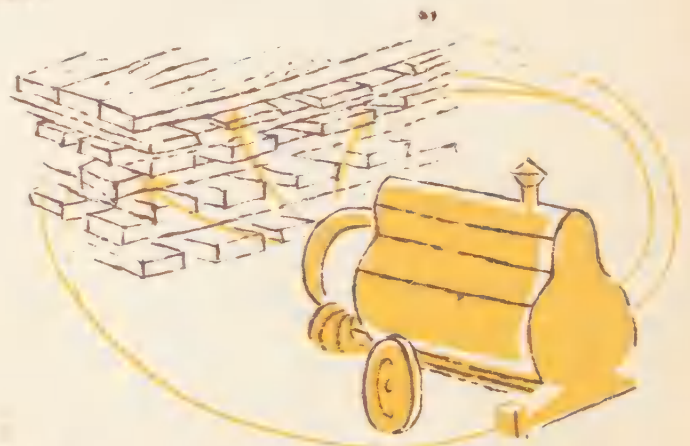
3. Hole Borer: A Yakima, Wash., farmer, C. M. Hull, has hooked up an auger to his power take-off to bore holes in stumps for blasting.



4. Tractor Loader: It can handle most small logs. For bigger ones, Prof. E. W. Foss, Cornell Univ., has developed a *logging arch*. Using it, your tractor can haul a log containing 400 board ft. It has heavy-duty ball-type hitch for use with any tractor, and a heavy-duty hydraulic piston to lift the logs. Made from a truck front end and 3-in. and 4-in. pipe, it can be built in most farm shops. Plans are available from Cornell Univ., Ithaca, N.Y.



5. One-man Sawmill: It will turn out 1,000 ft. of lumber daily. Made by Belsaw Machinery Co., Kansas City, Mo.



6. Crop Driers: They can season your lumber, too. U. S. Forest Products Laboratory, Madison, Wis., has building plan for recirculating hot air through building paper tunnel. In one test, cost of seasoning was \$8 per 1,000 ft.



MODERN TRANSPORTATION FOR THE FARM

New '55 Ford cars,
trucks and tractors are
designed to offer you
the finest equipment
for enriching today's
country living



High-spirited Thunderbird* dramatizes advanced design of new '55 Ford cars

DOWN-ON-THE-FARM FAVORITES

New from engine to tubeless tires, '55 Ford cars set even higher standard for the American Road

FOR 52 YEARS the Ford car has been the farmer's car. Your father probably owned a Ford. If there's a real old car still operating in your neighborhood, chances are 1,000 to 1 it's a Ford. For one simple reason: traditionally Ford has built the automobile that stands up to the farmer's job, that provides reliable, efficient transportation at the lowest possible cost.

The '55 Ford carries this tradition another step forward—in terms of better American farm living today. Through the years Ford also has been first to bring latest engineering advances to the practical-minded buyer. As times change and car owners demand more power, more speed, more safety, comfort, and

versatility—more automobile for their dollar—Ford manufacturing skill finds a way to build such a car.

In 1955 Ford sets still a higher standard with 17 new models, each enclosed in a chassis and Crestmark body of all-new design. These smart new cars are headlined by the new Ford Thunderbird with its special edition of Ford's famed Y-block V-8 engine—and like this smart new personal car, all embody the most advanced engineering design, beauty of styling and precision manufacturing methods found in the automobile industry today.

Like its predecessors, the beautiful '55 Ford is engineered primarily for usefulness, fuel economy, performance,

* THUNDERBIRD FACTS

Wheelbase, in.	102
Height (to window line), in.	34.8
Engine displacement, cu. in.	292
Bore x stroke, in.	3.75 x 3.30

Equipment includes four-barrel carburetor, dual exhaust, removable fiber glass hardtop. All-steel body. Engineered and built to be serviced by Ford dealers everywhere.

strength, easy maintenance, comfort and roominess. But further, it is designed for today's driving habits and styled for today's admiring eyes. Whatever you want in a car, you'll find in a '55 Ford.

NEW MODELS MAKE NEWS

The sensation of the automobile world in '55 is Ford's glamorous new Fairlane series of six models—sedans, coupes, convertibles as striking in concept and

as rich in luxury details of styling and performance as the most expensive cars in America.

But whether you choose a Fairlane Crown Victoria that will dazzle your friends, or the low-priced Mainline Tudor with its clean, contemporary lines, you get high Ford quality and advanced design in every significant part. The same modern, efficient engines; rugged frame and running gear; and hull-tight body are built into *every* Ford car sold.

Ford styling for '55 is years ahead in functional beauty. The body is lower (though road clearance is unchanged), with long, sweeping taillight-to-headlight lines. New wrap-around windshield and rear window add glass area for virtually full-circle vision. Inside, hip and shoulder room for passengers is greater. Expertly harmonized color and upholstery combinations bring America's finest taste to your garage door.

FAMED ENGINES LEAD FIELD

At all speeds you'll enjoy the lively response of Ford's famous low-friction short-stroke engines, V-8 and Six, which

The glamorous Fairlane Crown Victoria—years ahead in functional beauty





The family car that's always dressed in Sunday best: Customline Fordor

have even higher compression and extra horsepower in 1955. You'll find flashing new get-up-and-go at ordinary driving ranges in the 1955 Ford—a "trigger torque" response that gives your car greater agility, speed and power to get you out of tight spots in traffic and keep you ahead of the parade. A new 18-mm. spark plug, 29 per cent larger than the previous spark plug and another "Ford

first," maintains full power over a longer period.

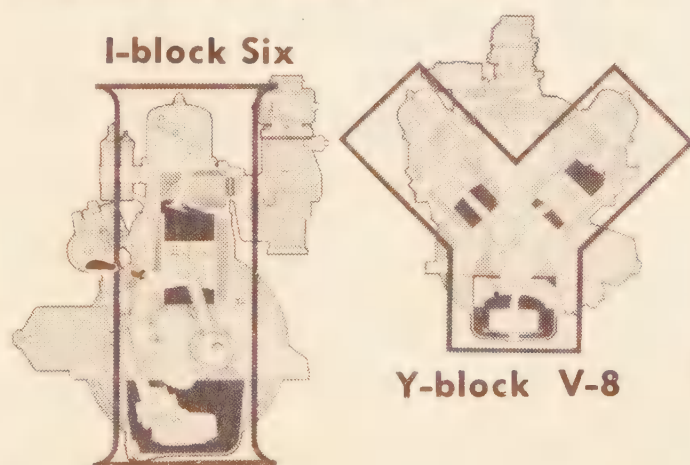
New tubeless tires—now standard equipment—provide greater safety, better ride, longer life. New "angle-poised" uptilted ball-joint front suspension reduces shock impulses from the road. You'll notice especially the extra smooth ride.

So broad is the choice of body styles, engine and transmission combinations, colors, and interiors, optional power accessories, that you are sure to find exactly the right '55 Ford for your individual needs, your tastes, and your purse. A few of the outstanding features are described in these pages. Let your Ford dealer show you the rest.

With transportation ever more important in the modern farmer's life, one test-drive will show you why Ford sales today are breaking all-time records.

POWER AS YOU WANT IT

Two Ford engines, 3 transmissions, and 4 power driving aids may be combined to provide just the balance of per-



'55 Ford Y-block V-8 engine has higher compression, increased horsepower, as does the lively economical Ford I-block Six

IV FORD AND THE FARM



Every Ford model has same built-in quality. Here is '55 Mainline Tudor

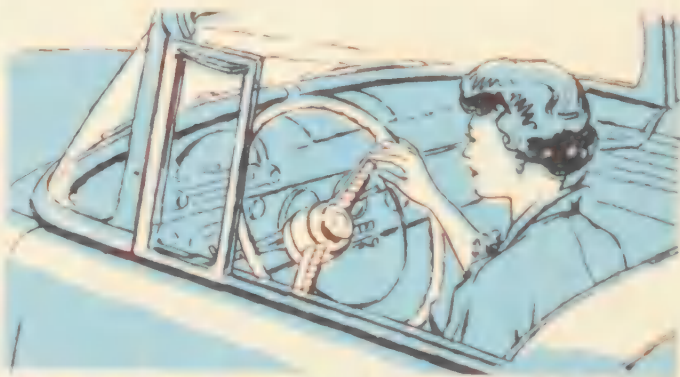
formance, driving ease, and economy factors which best suit your own driving conditions.

Standard '55 transmission and clutch are heavier, stronger for transmitting higher engine torques.

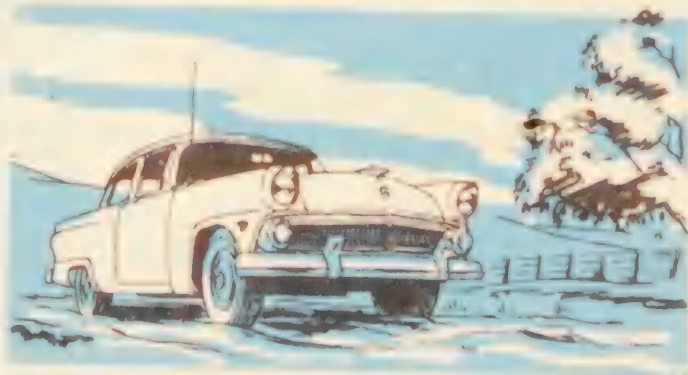
Overdrive reduces engine speed 30 per cent during sustained highway driving, saves fuel, engine wear, and driver fatigue.

Fordomatic combines torque converter and planetary gears for smooth, fully automatic stop-and-go shifting. New '55 Fordomatic with "speed trigger" action provides low gear for fast starts, or when you want extra acceleration in tight spots in traffic.

Power assists make your driving chores easier: Master-Guide power steering, which retains "feel" of the road at the wheel; Swift Sure power braking; push-button windows, all four controlled by driver or individually at will; and power-adjusted 4-way front seat. New Sunliner accessory closes convertible top automatically at first drops of rain, if car is parked with ignition off.

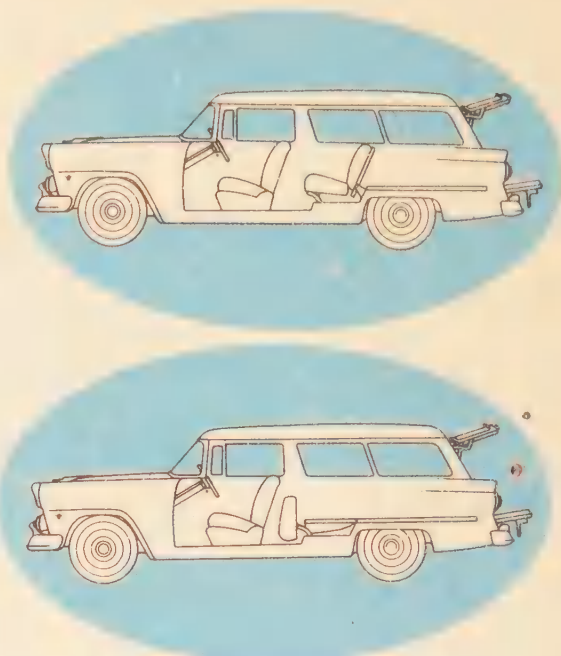
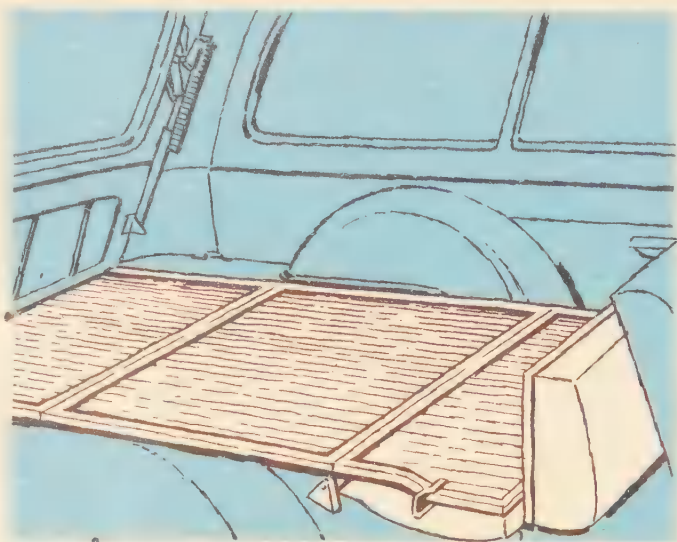


Smooth stop and go shifting is afforded by Fordomatic transmission which also has that extra power needed for quick acceleration



Ford's Master-Guide power steering and the other power assists available make driving the '55 Ford a really pleasurable experience

FORD AND THE FARM V



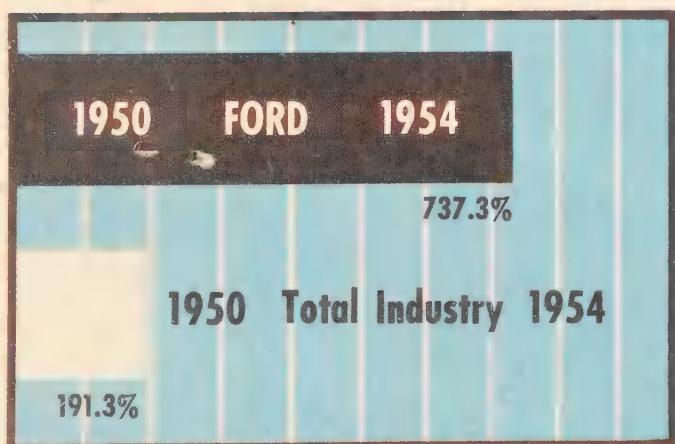
Ranch Wagon converts in few seconds from smart 6-passenger sedan (upper right) into hauler with amazing capacity (lower right). Folding rear seat forward into floor (left) will provide 30 sq. ft. with tailgate down

GLAMOUR CAR ... WITH MUSCLES

Farmers get double service from Ford Station Wagons

A SIGN OF THE TIMES in the country today is the remarkable number of double-duty vehicles you see on the nation's farms, ranches, and suburban streets. Since the war, preference of the car buyer for a smart passenger sedan which can be converted into an all-around carrier has multiplied 9.8 times, still is rising fast. Significantly, Ford's traditional lead in this field has increased to nearly half of all "wagons" made.

Comparative Station Wagon Sales Since 1950



Total industry increase has been 191.3% while Ford sales in this category have increased 737.3%

Five Ford station wagon models are offered in '55, including the new 4-door, 6-passenger Country Sedan. There are two Ranch Wagons (2-door, 6-passenger), 8-passenger 4-door Country Sedan, and the glamorous Country Squire.

In all of them, Ford engineering has designed maximum utility and convenience into the loading space. Ingenious seat arrangement (see diagrams) makes the conversion an easy, quick job.

Lift gate and tail gate can be opened with one hand, then lock automatically into position, swinging the license plate down into view. Since the tail gate is level with the floor inside, flat loading space adds up to 30 square feet in Ranch Wagons, 34 square feet in the others, with more than 3 feet in height.

Ford station wagons all have heavier rear axle and springs, and are equal to sedans in style and comfort features and just as easy to drive. For shopping, for transporting children, carrying bulky packages wherever needed—or for a week's trip up to a mountain lake—more and more farmers and their wives find that it pays to own a new Ford "Wagon."



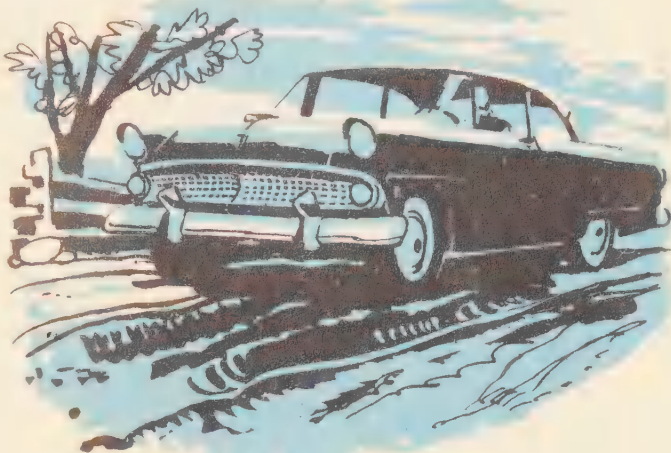
When a farm wife shops, she needs easy handling along with carrying capacity in her car. Six- or 8-passenger Country Sedan provides both

Nowadays the "station wagon set" includes everyone who works or plays outdoors. For hunting or fishing, Country Squire stows your equipment

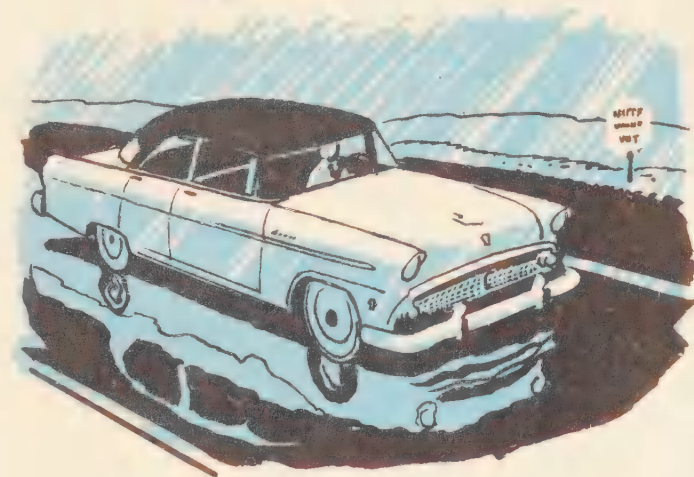


ON ANY ROAD, IN ANY WEATHER...

These '55 Ford features mean easy riding free of care



GREATEST ADVANCE in chassis design in 20 years, Ford ball-joint suspension does away with kingpin wear, compensates for the bumps even on roughest surface. New 3-degree uptilt for "angle-poised" front suspension reduces shock impulses, results in extra smooth ride.



What makes a car comfortable? One big answer is sealing—against water, dirt, heat or cold, noises, odors. Tests prove Ford body insulation and sound conditioning more hull-tight than costlier cars. This roof has felt pad and glass fiber layer. Rubber body-mounts snub out vibration.



Completely new '55 Ford frame is stronger than ever. The Ford chassis construction is famous for ability to take hard use (witness this stunt-show jump). Bigger brakes give greater stability in emergency stops, add "many miles to life of linings. The famous Hotchkiss drive is incorporated on all models.

TUBELESS TIRES AT NO EXTRA COST



Instead of inner tube, '55 Ford tire has air-holding butyl liner as integral part of casing. It cuts down tire trouble and delays because (1) there's no tube to scuff or pinch, (2) puncture or impact damage usually turns into slow leak rather than sudden flat, (3) tire runs cooler, (4) tire need not be removed for ordinary puncture repair. New "anti-squeal" tread gives better traction. Ford is first in low-priced field to offer premium tires at no extra cost.



Lettuce farms in California use C-800 Big Job for loading operations in the field, then haul the produce swiftly over highways to packing sheds

FARM TRUCKS DO BIGGER JOBS

Engineered for modern farm needs these
'55 Ford trucks carry greater pay loads
more frequently over longer distances

A REVOLUTION in American agriculture, literally in the last decade, has given the farmer's truck a more vital role than ever before. Modern marketing practices demand ability to move produce fast and often, and at considerable distances. Modern farm machinery takes more daily fetching and carrying of heavy or bulky parts and fuel. So do modern farm techniques of crop control. Even social life in the country demands more transportation.

The new '55 Ford truck is designed with the farmer's needs in mind. It will do more work at less cost and with less

effort on the part of the driver. It will last longer. Ford triple economy gives you more truck for your money.

PICKING THE RIGHT TRUCK FOR THE JOB . . .

Looking upon your farm truck as a "hired man in iron pants" helps save time, trouble, and money if you carefully consider the kind, quantity, and conditions of the work you want the truck to do. Remember, there are 24 basic types of '55 Ford trucks—over 190 distinct units—actually thousands of possible combinations of 5 engines, 11

transmissions, optional bodies and equipment!

This variety is provided by Ford engineering to match *any* job with precisely the right Ford truck. In analyzing your farm's requirements, first cost is only one consideration. Over the long pull you want service, economy, a truck that will stand up.

Basic measuring stick is *average payload*. Overloading increases running and maintenance costs, shortens truck life. Be guided by the gross vehicle weight (GVW) rating, which is the limit of the manufacturer's guarantee. A Ford F-100 pickup is the huskiest light-duty truck ever built. But if typical loads tend to crowd the GVW, you need a bigger Ford model.

For example, many dairy farmers find the F-350 express their most efficient pickup (milk and feed are heavy). Livestock, grain, and poultry farmers save

hauling time and costs with the heavy duty F-600.

Kind of load affects weight distribution and thereby truck efficiency. Carrying long timbers may overload a rear axle even though total weight remains within the GVW. That farmer needs a Ford 6-wheeler.

Terrain influences speed and power needs. Mountains require high "gradeability," the best combination of engine and drive for climbing hills. Long, flat distances, traveling light, are covered faster, cheaper with an Overdrive Transmission. Hard going in rough or soft ground calls for extra "rim pull" at the wheels, a matter of engine torque, rear axle ratio, and tires.

Tell your Ford dealer what you want your truck to do. He has available all the engineering data to help you select the right '55 Ford truck for your farm.

His analysis can save you money.

FACTORS IN TRUCK ECONOMY

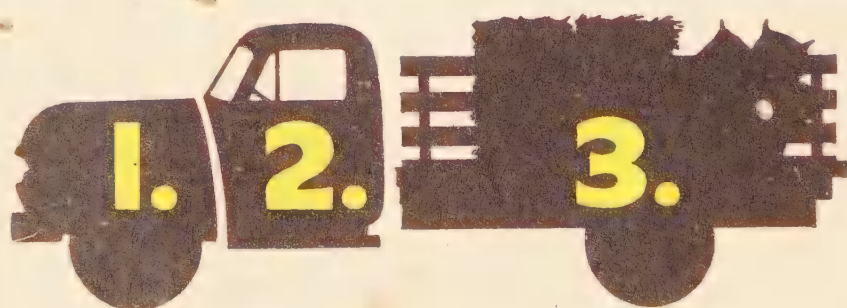
In a famous experiment, 5,500 users of Ford trucks kept penny-by-penny records of gas, oil, and maintenance expenses for a total of 50,000,000 miles. This nationwide Economy Run, covering every type of farming as well as 190 other occupations, revealed that:

- Average running costs of a Ford farm pickup truck were only 2.13 cents a mile—down to 1.35 cents for half of the owners.

- Except for the gasoline to tick off the miles (85 per cent of the cost), Ford truck owners spent very little. Oil took only 4 per cent.
- Periodic servicing by Ford dealers indicates the value of regular maintenance. Half of the trucks never had to come into the shop once for any repairs!

This is the real meaning of the Power Economy built into Ford trucks by advanced Ford engineering.

3 POINTS TO COMPARE



1. POWER

Short-stroke Ford V-8 or Six delivers more horsepower . . . more "pull" from less fuel.

2. COMFORT

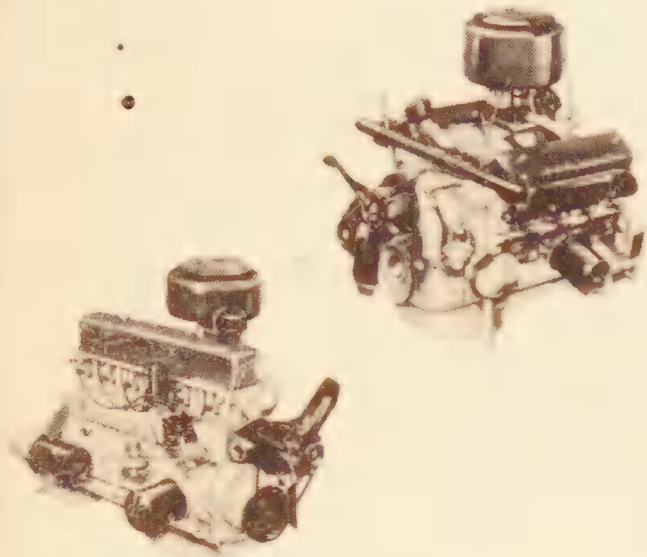
Driverized Cab has more glass area, shock-proofed seat, easier shifting . . . you feel less fatigue.

3. PAYLOAD

Rugged Ford chassis has higher axle and spring capacity than ever . . . carries bigger loads.

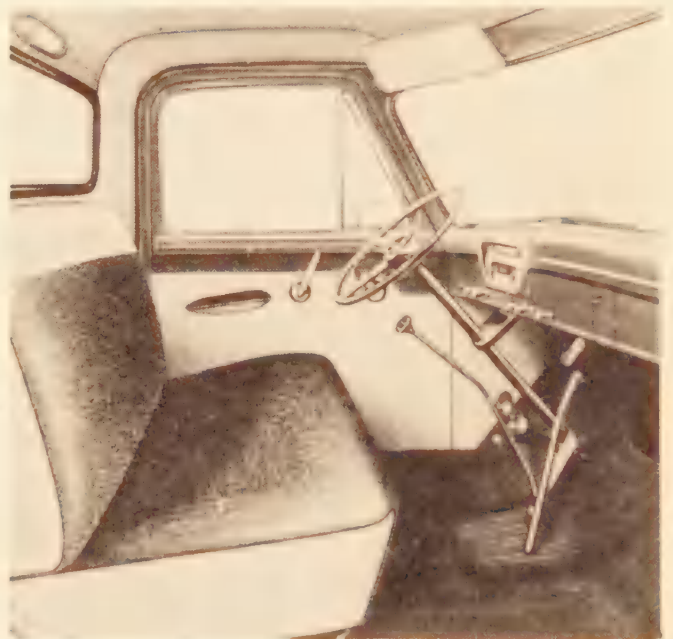
TRUCK FACTS FOR THE FARMER-ENGINEER

TO THE MAN who lives with machinery every day of his life on a farm of today, every detail of engineering design and quality construction can become mighty important. Take an inside look at the '55 Ford truck. Scores of exclusive features provide triple economy in daily operation. Like these:

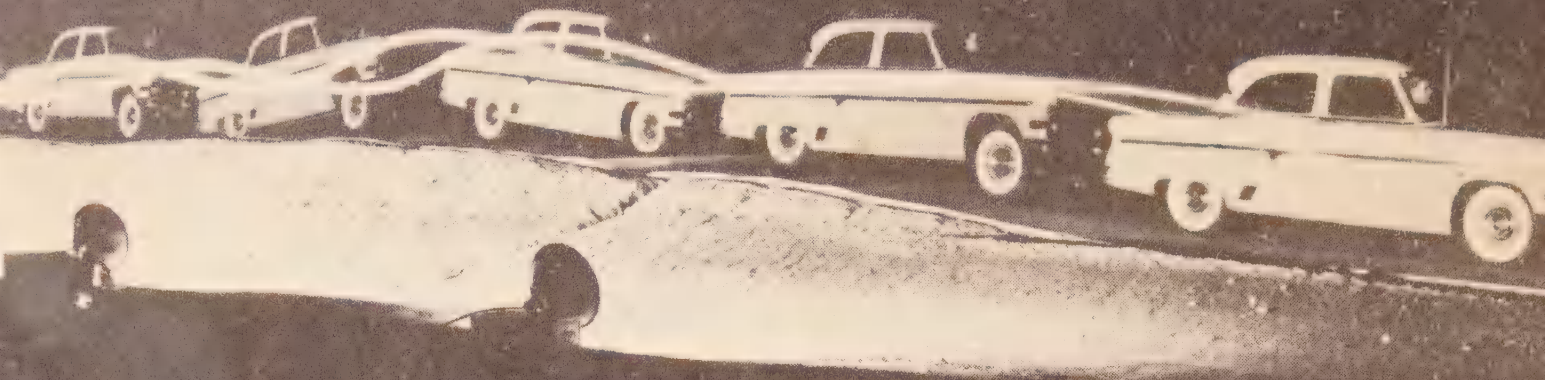


Under the hood, completely modern design of Ford V-8 and Six engines give you extra "octanes" out of regular gas. Power King and Cost Clipper have higher compression ratios in '55 and greater horsepower. New 18-mm. sparkplug—same as in aviation and racing engines—sustains peak power, resists fouling. Famous short-stroke large-bore design means less piston travel per mile, less friction and wear, more power released for useful work. Deep blocks add rigidity and engines are quieter.

"Driverized Cab" means the only truck cab designed for you, the driver—or for your wife and family. Visibility's unlimited through wider Ford windshield, 4-foot rear window. Adjustable seat has exclusive shock snubbers for smoother, more comfortable ride, with woven plastic covering that's cool and easier to clean. Thermacooustic headlining damps out noise and heat in Custom cabs. You can be comfortable in a '55 Ford truck cab—it's so easy to steer, easy to drive.



New power take-off with 4-speed transmission makes '55 Ford stake or pickup more versatile than ever. With short wheelbase and turning radius, uniform wheel treads, it takes off-the-road travel with ease. Exclusive toggle-type latches really clamp tail gate for keeps, with rubber cushioning for quiet. Full length parallel frame will carry bigger payload, gives engine more room for easier servicing. Big brakes last longer. You can get power brakes, too!



Quality of Ford parts gets ruthless testing on speed track, in desert heat, on mountain grades. Ford proving grounds are world's most extensive

WHAT EVERY OWNER SHOULD KNOW ... ABOUT MAINTENANCE

Your Ford car, truck, or tractor can take a lot—but in thousands of miles and millions of stops and starts, even the most thoroughly tested precision-built parts will need some care. A few recommended precautions prevent excessive wear and make up for normal wear, providing good performance. They are simple to follow and they save you money.

LUBRICATE—Grease is cheap, so is oil—compared to precision-made parts of alloy steel. Let your Ford dealer's trained mechanics lubricate all running parts, change engine oil and oil filter cartridge at the periods recommended by Ford engineers. They'll save you future repairs.

Clean—Dirt, water, and acids are constant enemies no vehicle in use can completely avoid. It pays to have your radiator, air cleaner, other "entrances" to the car's vital parts regularly cleaned. Protect the body with a good glaze and frequent washing, the under parts with undercoating.

Adjust—As parts gradually wear, their performance can be brought back to normal by adjustments provided in their design. Excessive wear results if adjust-

ing is neglected. Regular check-ups at stated mileages by your Ford dealer cover all essential services.

Replace with Genuine Ford Parts only. Every Ford Part is precisely engineered for its job. You can't tell differences in metal quality without a chemical test, or the exact shape of key parts without a microscope. The Genuine Ford Parts sign is your protection, guarantees that the new part is right for *your* Ford.



Small parts as well as large must have built-in precision to meet Ford's exacting standards.

WHAT WILL THEY THINK OF NEXT?

PUSH-BUTTON farming is not here—yet! But the roll call of spectacular farm machines keeps growing. For ag engineers are on a 'round-the-clock schedule thinking up new tools to help farmers make the job easier and cheaper.

Today machines will shake an almond tree and pick up the nuts—and do the job for 20¢ a tree vs. 70¢ for hand labor. An electric walnut cracker shells 1,200 lb. of nuts hourly—high voltage explodes the shell.

Wisconsin scientists use high-frequency sound machines to sterilize, pasteurize, and homogenize milk. Ultrasonic waves kill the bacteria. Sound waves will also kill bugs in grain and speed up the curing of cheese.

Mechanical brooms for dairy barns will sweep up in 40% less time. Electric sweepers are three times faster than hand sweeping.

Cornell engineers have developed a "pencil sharpener" for posts—it's powered by a tractor, sharpens posts for driving.

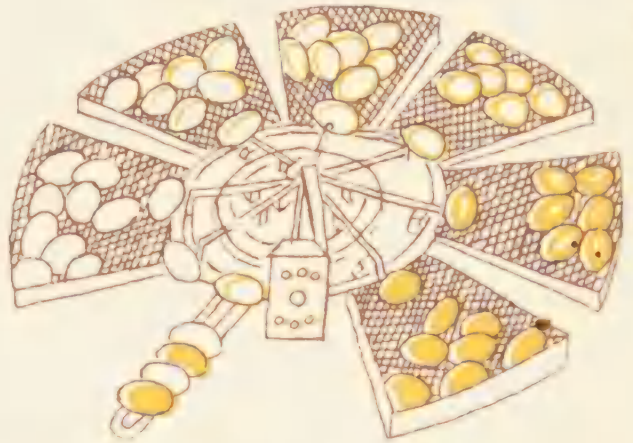
A stone picker-upper will clear fields of all stones from 1½ to 8 in. in diameter.

Hawaiians have developed an Irrometer which gives moisture readings of various fields—tells 3 days ahead when more irrigation is needed.

Such things as snowshoes for tractors, slot-machine dispensers for milk, radios and speedometers for tractors, are getting common. But did you know you can get automatic controls that ring a bell when the cow's been milked 4 minutes, tell you when a burglar has opened the henhouse door, and keep the hog trough from freezing over?

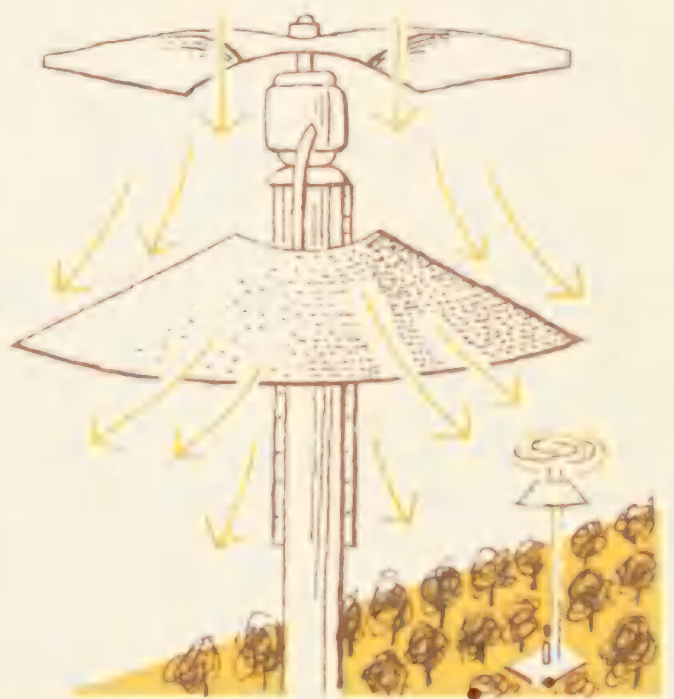
One machine picks up hay in the field, grinds it, then dehydrates it with heat from the motor that drives the hammer-mill—and alfalfa meal comes out bagged. Automatic machinery will take corn from a crib, shell it, grind it, mix it with other feed, and then meter it out to livestock in quantities needed.

About the only thing machines cannot do on a farm is turn out money automatically. It takes brains and management to do that. Machines still need a master—and a manager!



Electronic Egg Sorter

"ELECTRIC EYES" sort out eggs by color of the shell in this machine developed by USDA researchers. They can also look through the shell to find blood spots.



Fan Fights Frost

MOUNTED on an orchard tower, the fan automatically starts when temperature gets below 31°. Fan slowly revolves on its 30-ft. tower. It draws warmer air from above and spreads it over the orchard. In tests it has lifted temperature to 35° in only 30 minutes.



THE more one man can produce efficiently, the more net profit he makes in good times, and the less likely he is to be hurt in bad times. That's why we're plugging for High Goal Farming. High standard living and High Goal farming go hand in hand.

The three keys to High Goal Farming and high net profits, as we see them, are:

1. High output per acre.
2. High feed efficiency per livestock unit.
3. High output per man.

Farmers have made real progress in the past 15 years. We've increased our production per man 78%. We're feeding millions more people and feeding them better. And we're doing it on less land with less help.

But the gap between "average" and High Goal farming is still very wide—too wide.

A champion dairy cow has given 42,000 lb. of milk a year. The U. S. average is only 5,300 lb. With modern equipment, one man can raise 1,000 hogs a year, 60,000 broilers, 5,000 hens. But the average output per man is far below this. And take a look at the wide gulf in corn production:

CORN RECORDS

World's record	233.2 bu.	Cledith Rowe
5-acre yield	224.2 bu.	Carroll Brown
17-yr. ave. for 60 acres	130 bu.	L. A. Abbott
Top state ave.	64 bu.	Iowa, 1952
Top natl. ave.	42.8 bu.	1948
10-yr. natl. ave.	34.7 bu.	1941-50

A PAGE FROM OUR WORLD RECORD BOOK

We've rounded up these "world records" to give you a yardstick on what's possible. If you know of a higher record on any of these, drop us a letter.



CHICKENS

Breed	No. of Eggs
White Leghorn — J. A. Hanson, Corvallis, Ore.	353
R. I. Red — E. B. Parmenter, Franklin, Mass.	351
New Hampshire — Arnold Whittaker, Stratham, N. H.	344
Barred Rock — Cobb's Red. Chicks, Concord, Mass.	344
Buff Orpington — Capt. I. Brooks Clark, Hempstead, N. Y. ...	343
Dominique — Thurlow Travis, Peekskill, N. Y.	340
Inbred-Hybrid — Roscoe Hill, Lincoln, Neb.	336
White Rock — Colonial Poultry Farm, Pleasant Hill, Mo. ...	326



DAIRY

Record	Record Holder	Milk per Cow, Lb.
Champion cow — Merle Green.....		42,805
Top dairymen — California DHIA, 190,000 cows.....		10,130
DHIA in U.S. — 1,186,000 cows.....		9,195
Top state — California.....		7,310
U.S. aver. — 1951.....		5,326



SOYBEANS

	Bu.
Record yield — George Shell.....	61.8
Top 100 farmers — 1952.....	45
Top state aver. — Illinois, 1949; Nebraska, 1952.....	26
Top nation — Canada, 1949.....	25.1
Top U.S. aver. — 1951.....	20.9
Ten-year aver. — 1941-1950.....	19.4



COTTON

	Lb.
U.S. record — C. F. Peay, 1949, 1 acre.....	2,504
5-acre record — C. Q. Clark.....	1,783
Top state ave. — Arizona, 1952.....	727
Top U.S. ave. — 1948.....	311.2
10-year U.S. ave. — 1941-50.....	267.6



WHEAT

UNITED STATES		FOREIGN	
	Bu.		Bu.
Top U.S. yield (Wash., 1898).....	117.5	Netherlands	61
Top state ave. (N.Y., 1952).....	29	Denmark	53.4
Top U.S. ave. (1952)	20.9	Austria	52.1
Ten-year U.S. ave. (1941-50).....	17.7	Russia	10.7

IT'S HIGH OUTPUT PER MAN THAT PAYS OFF

THE No. 2 key in high net profits is high output per man. Match these performances—or even come close—and you will both save labor and make more money:

The best Iowa farmers raise a bushel of corn with *3 minutes of labor*, and some do it in 2 minutes. National average: 40 minutes—20 times greater.

Some Kentucky dairymen make 100 lb. of milk with *45 minutes of labor*. National average: 3 hours—four times greater.

Many South Dakota farmers produce a bushel of wheat in 6 minutes. National average: 20 minutes.

Top Indiana hog men raise 100 lb. of pork with 45 minutes of labor. National average: 3 hours—four times greater.

Mechanized Mississippi farmers produce a bale of cotton in 30 hours. National average: 182 hours.

Of course, output per man-hour is just part of the story. You don't make money by hurrying one job through so you can sit in the house. It's really output per man that counts—the volume one man can turn out.

Five of the top New York dairymen produce 290,000 lb. of milk per worker per year. Their cows are high producers—13,215 lb. average. Their milk income, above feed costs, is \$8,000 per farm worker.

Elmer Burkert, Paris Hill, New York, handles 22 cows by himself, as do many dairymen. But few produce 336,000 lb. of milk per man as he does. It takes high livestock production and high yields to make labor most effective.

John Davis, Eaton Co., Mich., runs a 260-acre dairy farm alone. He has two crops, corn and alfalfa-brome, and he milks 26 cows. By specializing he makes his labor count for more.

Roman Maly, Wisconsin dairyman, says with pen stabling and self-feeding he is prepared to milk 60 cows and farm a 230-acre grassland

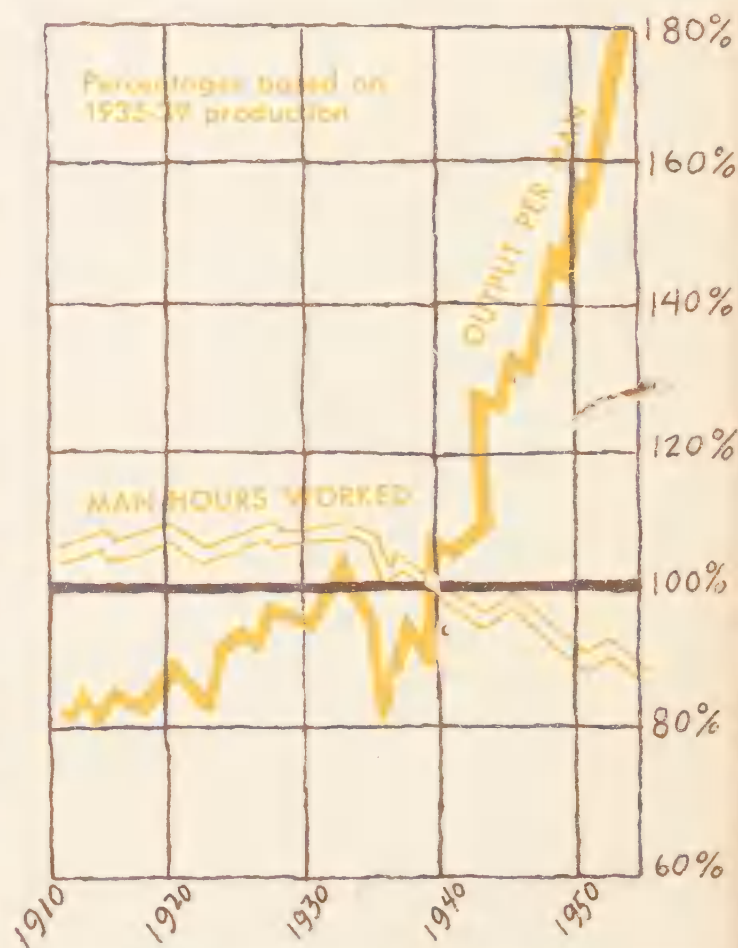
farm by himself with the help of a 12-year-old son at milking time.

At the Consolidated Products Farm near Des Moines, Iowa, one man raised and fed out 1,100 hogs. Labor income above feed costs ranges up to \$20,000 (see page 163).

Three men care for 12,000 laying hens and 7,000 pullets on the Sandy Ridge Farms, Bucks Co., Penn.

A reasonable goal for broilers is for each man to care for 15,000 broilers at a time and raise four batches a year, says Frank Reed, Univ. of Maine.

WE'RE PRODUCING MORE WITH LESS LABOR



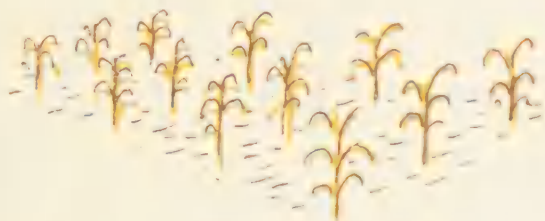
A REVOLUTION has taken place on the farm in the last 18 years, thanks to modern machinery, better seeds, and better farming. In 1953 the U.S. farmer produced 75% more than in 1937. Since that time U.S. farms have turned out 36% more products with 24% less labor.

200-BU. PRESCRIPTION

HERE'S prescription for growing 200 bu. of corn per acre, by Dr. K. C. Berger, Univ. of Wisconsin:



Soil: Silt loam soil, good tilth and moisture-holding capacity.



Plants: 18,000 to 21,000 per acre.



Manure: 15 tons. (Cost: \$45.)



Fertilizer: 1,300 lb. of 10-10-10; 400 lb. of 4-16-16; and 250 lb. of ammonium nitrate. (Cost: \$69.51.)

DOUBLE YOUR NET

EXPERIMENTAL tests show why high yields are important:

As corn yields jumped from 60 to 100 bu. per acre, production costs increased from \$52.85 to \$55.33 per acre. Cost per bushel dropped from 88¢ to 55¢ and net profit per acre almost tripled—\$31.20 to \$84.67.

3-YEAR CORN AVERAGE: 196 BU. PER ACRE

NEW corn king in our High Goal derby is J. Herbert Roadruck, White Co., Ind. His 3-year average was 196.6 bu. per acre—officially checked in the Indiana 5-acre contest.

Here's how he grew 198.5 bu. per acre last year: He plowed up mixed-grass legume pasture which had been twice manured. He disked the field three times, harrowed twice before planting. He planted corn May 15, in 39½-in. rows, with one kernel every 8 in. He cultivated once with rotary hoe, twice with tractors.

He's convinced the key is heavy fertilization. He used a total of 1,390 lb. of fertilizer per acre. He plowed down 350 lb. of 60% potash and 360 lb. of 47% phosphate, put on 250 lb. of 4-16-16 in the row at planting, and sidedressed June 25 with 140 lb. of anhydrous ammonia.

A close runner-up comes from the new "Corn Belt," way down South. Lamar Ratliff, 14-year-old 4-H youngster from Baldwyn, Miss., has a 3-year average of 193 bu. per acre. He made 215 bu. last year by irrigating from a farm pond.

For group effort, Wisconsin takes the prize. A total of 765 Badger farmers joined Pacemaker clubs and followed the High Goal fertilizer prescription worked out by Univ. of Wisconsin soil scientists. They harvested an average of 102.2 bu. despite dry weather.

William F. Renk & Sons had 55 acres which made 168.9 bu. Their "prescription": 400 lb. of 0-10-39; 300 lb. of 5-20-20; and 80 lb. of anhydrous ammonia.

Significant points from the top 20 farms which made 151.5 bu. per acre: Fertilizer use was high. Plant population averaged 17,390 plants per acre. Ears from these fields weighed 0.61 lb. each—40% heavier than ears from 100-bu. yields. A random sample from 26 fields showed 10.3% protein, 25% above average.

WHO SAID FORAGE IS A "CHEAP" CROP?

IN THE past we've usually thought of grass and other roughage crops as low-value crops. We're just learning that they can make you more money than any other crop on your farm. Here are three examples of High Goal forage production:

Ton of Beef per Acre

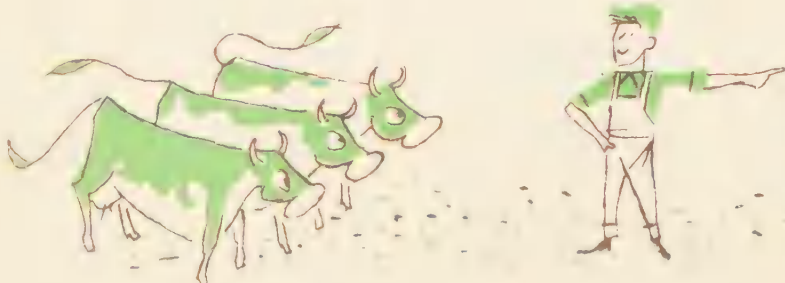
PASTURE returns have been going up and up. The Florida Experiment Station reports 2,089 lb. of beef gain from an acre of St. Augustine grass. Over a 5-year period, grass carried 3 steers to the acre and made 1,802 lb. per beef per acre. Dairymen report as high as \$750 to \$800 an acre return from irrigated pastures—after deducting other feed costs. Such pasture will carry 3½ to 4 cows per acre.

Dr. A. W. Klemme, formerly of Univ. of Missouri, thinks we should set up some king-sized goals like a ton of beef from an acre of pasture, and 10 tons of milk from an acre of pasture.

Nearly a billion pounds more beef could be produced from 8 midwestern states alone if grasslands were fertilized according to college recommendations.

Ralph Kidder, Florida animal-husbandry specialist, says irrigated grass, fertilized with 500 lb. of 0-8-24 annually, will carry 2½ cattle per acre the year around. Each animal gains 1¼ lb. daily—1,000 lb. of beef per acre annually.

John Heidbrink, Lafayette Co., Mo., has gotten 800 lb. of beef per acre from improved pasture.



38 Tons of Corn Silage

JOE MCKELHEER harvested that much chopped green corn by actual weight on his irrigated farm in the Yakima Valley, Wash.

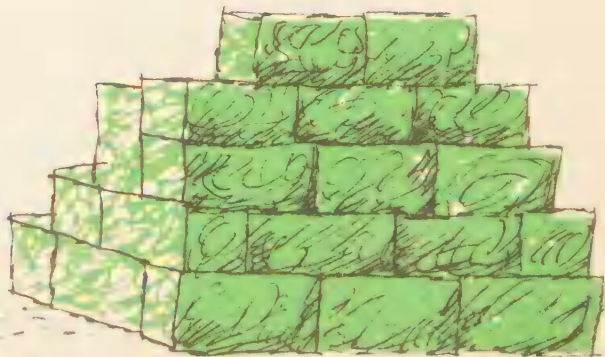
He sells it from his trench silo for \$10 a ton on a come-and-get-it basis. That adds up to a whopping \$380 an acre—more money than 250-bu. corn would bring in.

Feed that much corn silage to beef cattle, along with a little protein supplement, and you could make 4,600 lb. of beef per acre that would give you a gross income of \$800 per acre after deduction of other feed costs. (In Illinois tests, steer calves have gained 1 lb. on 16 lb. of corn silage plus 0.6 lb. of soybean oil meal and a few minerals.)

12 Tons of Alfalfa Hay

HARRY G. FAWCETT, Los Banos, Calif., has grown 12.42 tons of alfalfa hay to the acre. He says that year in and year out he expects about 10 tons from 5 to 6 cuttings. He irrigates and fertilizes with superphosphate and manure.

Dr. D. F. McAlister of the Agricultural Experiment Station, Tucson, Arizona, reports yields of 14.28 tons of alfalfa to the acre in irrigated experimental plots. Nebraska farmers have received yields as high as 6 tons without irrigation, according to T. A. Kiesselbach.





LEO IS POULTRY CHAMP— 307 EGGS PER BIRD

WE NOMINATE Leo Denny as High Goal Poultry Champ. His 150-hen flock laid an average of 307 eggs each last year on his farm in Olmstead Co., Minn.

Even with poor egg prices, 35¢ a doz., his flock made \$4.64 net profit per hen housed. (At that egg price, most average producers lost money.)

Some of the highlights of Leo's system:

1. Automatic light switches keep the hens working on a 17-hour day.

2. Each bird gets 3 sq. ft. of floor space and 10 in. on the roost. A feeder space of 20 ft. for 150 hens, and a 3½- by 12-ft. community nest, are provided.

3. Layers ate only 4 lb. of feed per dozen eggs. Leo fed home-mixed mash which contained: 50 lb. of 38% concentrate, 75 lb. ground oats, 250 lb. ground corn, 25 lb. soybean meal, 100 lb. middlings, 25 lb. alfalfa meal, and 2 qt. cod-liver oil. Flock also got a bucket of oats each morning and a bucket of corn in the afternoon.

Leo uses ground corn cobs and straw for litter, and scrubs the laying house thoroughly with lye and boiling water before pullets are moved in.

HENS BRING IN \$6 MORE THAN FEED COST

A PEN of 75 hybrid hens returned an income of \$6.68 per bird over feed costs to win the California Random Sample Test. They laid 260 eggs per hen in 11½ months and ate only 3.7 lb. of feed per dozen eggs.

White Leghorns from the farm of Heisdorf & Nelson, Kirkland, Wash., had a 3-year average of \$6.91 income per bird over feed cost in the same test. They averaged 90.6% livability, and laid 259 eggs.

Since these chicks are selected at random from a commercial hatch, they show what any live-wire poultryman can do by getting top-quality chicks and then feeding and managing them properly.

Let's count up: One man can handle 3,000 hens (some handle as high as 5,000). At \$6.90 over feed cost, that's over \$20,000. Deduct other expenses. . . . Well, can you beat it in any other line of farming?



NORTHEAST CLAIMS CROWN

NORTHEASTERN poultry farms have more and better chicks than any other farms in the world—so they claim. And they give egg-laying contests as proof.

More poultry breeders from this area have had hens averaging over 240 eggs each in egg-laying contests than all the rest of the various U.S. areas combined:

White Leghorn: 19 breeders from the U.S. Northeast, 9 from the rest of the U.S. *Rhode Island Reds*: Northeast, 5; rest of U.S., only 2. *New Hampshires*: Northeast, 5; remainder of U.S., 2.

Barred Plymouth Rock flocks laying 220 eggs or more: Northeast, 9; rest of U.S., 2.

ROJA MUTHIAH,
47, HOSPITAL ROAD

FEED EFFICIENCY: KEY TO LIVESTOCK SUCCESS

THE major key to making money with livestock is feeding efficiency. What's left after you pay for your feed is most important in figuring your profits:

✓ **Chickens:** A High Goal hen should produce a dozen eggs on 5 lb. of feed, say Purdue poultry specialists. Fifteen years ago it took 7½ lb. Some farmers are doing it on 4 lb.

High production and high profits go hand in hand. If your laying ration costs \$5 per 100 lb., a 5-lb. hen laying at 40% will produce eggs at a feed cost of 35¢ a dozen. But if your hens lay at a 70% rate—that's 245 eggs a year—the feed cost per dozen eggs drops to 24¢.

Broilers: Feed costs account for more than 60% of the cost of raising broilers. In the Maine broiler test, broilers weighed 3.5 lb. at 10 weeks—and made the gains on 2.86 lb. of feed per pound of gain.

If your broilers eat 4 lb. of feed per pound of gain instead of only 3 lb., it means you have 15¢ more in feed invested in each bird. If you have 12,000 birds, that's \$1,800. And with the narrow margin on which broiler operators operate, this could well be the difference between profit and loss.

Hogs: Top hog men are now feeding out their hogs on 350 lb. of feed. In rigid Danish progeny tests, hogs make 100 lb. of gain on 300 lb. of feed. And one outstanding hog—the most efficient they've ever tested—

made 100 lb. on only 250 lb. of feed.

Cost of feed, as well as amount, is important. Carl and Daryl Leininger, Whitley Co., Ind., carried June pigs on ladino pasture to a market weight of 219 lb. without a speck of grain. The animals got only minerals and salt in addition to the ladino. A very cheap ration!

Beef Cattle: Biggest news in cattle feeding is in the use of roughage, antibiotics, and hormones. Purdue Univ. has shown cheapest gains on corn silage, grass silage, and even corn cobs plus "Purdue A," a supplement high in protein and molasses.

Use of antibiotics has made cattle gain ½ lb. more per day for the first 84 days on high-roughage feed ration. (See page 82.)

In Iowa State College experimental tests, 42¢ worth of hormones made \$22 worth of extra beef (page 83).

✓ **Dairy Cows:** In Rutgers Univ. tests, cows fed 1 lb. of grain for each 6 lb. of milk produced milk cheaper than when feeding was at the more customary ratio of 1 to 3.

Cows produced 8,410 lb. of milk on high-quality roughage—with no grain. When they were fed 1 lb. of grain to 6 lb. of milk, production jumped to 9,741. At 2 lb. of grain to 6 lb. of milk, production went to 10,313; BUT . . . with grain at 3¢ and milk at 5¢ a lb. this would lose the dairyman money. He would be feeding \$3 of extra grain to get \$2.50 worth of extra milk.



DON IS OUR HIGH GOAL DAIRY CHAMP

DON MORRIS, Ohio, has the champion High Goal dairy herd. During the last 3 years, his 24 cows have averaged about 16,000 lb. of milk and 630 lb. of butterfat each. The record:

1951—22 cows averaged 15,740 lb. of 4% milk; 626 lb. of fat.

1952—24 cows averaged 16,224 lb. of 3.9% milk; 639.1 lb. fat.

1953—29 cows averaged 16,149 lb. of 4% milk; 638.6 lb. of fat.

The cows are not pampered. They're milked twice daily, fed all home-grown feeds except protein. All rough-age is fed outdoors. No box stall feeding is done at all.

What does this mean? It means Don gets as much milk and butterfat as he would with 70 average cows. And his profits are 1,000% greater—because the average cow barely breaks even.

20 PIGS MARKETING PER SOW PER YEAR

CLAIRE WEMER, Rose Hill, Iowa, with 20 to 30 sows has hung up a 10-year record that makes us nominate him as our High Goal hog producer.

He has marketed an average of 9.3 to 10.5 pigs per litter for the last 10 years, despite some disease problems. That averages out at 20 pigs per

sow per year. These hogs weigh 200 to 225 lb. at 5½ to 6 months.

That sort of performance does more than lift mortgages—it puts two cars in the farm garage, automatic washers and dryers in kitchens, and smiles of prosperity on farm faces. And these smiles stay even when prices go down!

WHICH GROUP DO YOU BELONG IN?

	Average Farmers in U.S.	Good Hog Men	High Goal Hog Men
Pigs raised per litter	6.5	8	10
Weaning weight at 8 weeks	22 lb.	40	48
Pounds of feed to make 100 lb. of gain	470 lb.	365	315
Age at 200 lb. wt.	7½ mo.	6 mo.	5 mo.
Profit per 100 lb. pork when hogs sell for:	\$28	\$7	\$11
	20	\$3	\$7
	15	lose money	\$3





SECTION

8



SCIENTIFIC ALMANAC

"ALMANAC? Does that mean you advise folks how to plant by the moon, live by the stars, and tell the weather a year in advance?" a friend asked.

The answer: "No!"

We have no quarrel with almanacs which deal with weather and moon superstitions. But there are so many vitally interesting, important developments today that we prefer to stick to scientific fact.

Mark Twain once said: "Everyone talks about the weather, but no one does anything about it." But today farmers in 20 states and half a dozen foreign countries are paying weather "modifiers" millions to get clouds milked of extra moisture. Wheat farmers use hired cloud seeders to bring more rain. Cherry growers have hired seeders to prevent rain. And Oregon orchardists have paid two airmen to break up clouds that might send hail down on their valuable fruit.

Texas has set up a system of radar to warn against tornadoes. Companies whose business is affected by rain, sleet, snow, heat, or cold hire meteorologists to predict the weather 6 months in advance.

Climatology labs show that hens lay more eggs, hogs gain better, and cows give more milk when sprayed with cool water during hot weather. Scientists can delay or speed up the flowering of plants by regulating the amount of light they receive.

Ever hear of an aerial well? How much moisture does dew give? Can solar power be harnessed? We believe that some of agriculture's most exciting news is in the field of weather and water.



Birthstone: Garnet

Sentiment: Constancy

Flower: Carnation

Coming together is beginning. Working together is progress. Staying together is success.

YOUR 1955 WEATHER QUIZ

WILL it rain, snow, blow, freeze, frost, thaw, clear up, dry out, cool off, or warm up? All that means dollars-and-cents to folks in the country.

So here's our 1955 Weather Quiz to let you prove how expert you are on the weather. Mark each statement "T" if true, "F" if false. Then turn to page 125 for the answers.

1. Lightning rods are worthless and a waste of money. They will not protect house or barn.

2. It's usually colder out in the country than the temperature report you hear from town.

3. When weather forecast is for "scattered showers," it means your chances are less than 1 in 10 that you'll get rain on your farm.

4. Sundogs usually mean weather will change—and for the better.

5. Wind blows harder on top of a hill than on the approach to it.

6. Odds of a tornado hitting any given 640 acres of land in Iowa are about 1 in 10,000.

7. If your bunions hurt, or your

rheumatism acts up, it means a change in the weather.

8. If corn husks are tight on the corn, and fur heavy on the 'coon, it means there will be a hard winter.

9. Half-pound hailstones, big as a grapefruit, have sometimes fallen.

10. During an electrical storm you are safer on a rubber-tired tractor in a big field than in the house.

11. Farmers' "hunches" on tomorrow's weather are likely to be fairly accurate.

12. Rainfall may vary widely over the years on farms 5 miles apart.

13. Scientists can now make it rain when otherwise no rain would have fallen.

14. It has never snowed more than 60 feet anywhere in the U.S.

15. Most of the 'old weather maxims have a foundation in fact.

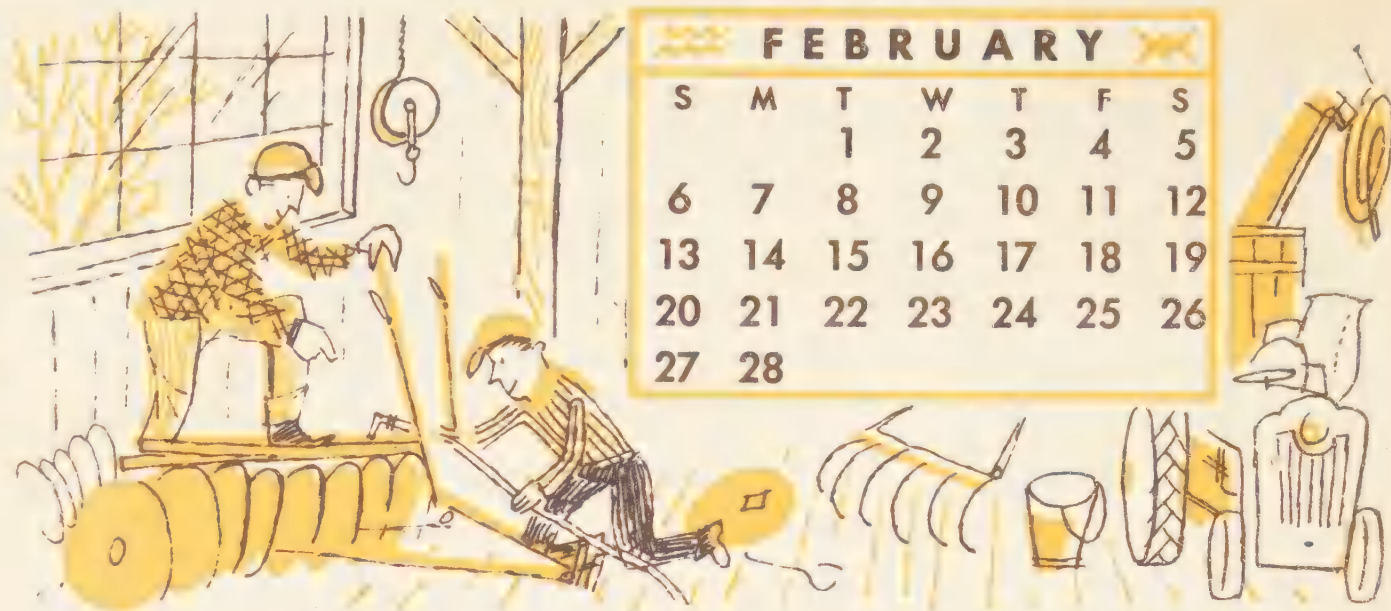
16. Winters are getting warmer.

17. Radar can see a rainstorm coming your way.

18. Accurate weather predictions 6 months in advance are now possible.

Joe Almanac says:

My New Year's Resolution is to farm my books as hard as my land—to go over my accounts carefully to find out the weakest points in my livestock and crop programs. If I lost money or just broke even, then I resolve to get *IN*—and do a better job on these things—or get *OUT*.



Birthstone: Amethyst

Sentiment: Sincerity

Flower: Violet

*There's no such thing as marginal land
—it's marginal men.—Howard Doane*

TRYING TO MAKE A COMMON-SENSE CALENDAR

TO PUT some common sense into our calendar! That's on the agenda of the U.S. Congress, the United Nations, and various foreign governments.

One of the crusaders for a perpetual calendar that would be the same every year, with holidays on the same days, is Willard E. Edwards of Honolulu. Thirty-six years ago, as a high-school student, he found why February has only 28 days. Two proud Roman Caesars, Julius and Augustus, arrogantly swiped a day out of February to add to the months named after them.

So he came up with his Perpetual Calendar idea. For the folks who want a 12-month calendar, he suggests months of 30, 30, and 31 days in each quarter. New Year's Day would be an International holiday, an *extra day* before the year officially opened. Leap Year would also be another extra holiday, between June 31 and July 1, every 4 years.

For those who want a 13-month calendar of 4 weeks each, he sug-

gests a 13th month called Endember, all weeks to start on Monday and end on Sunday; and with New Year's Day an extra holiday as well as Leap Year Day.

Edwards sees these advantages:

1. From a business standpoint there would be less bookkeeping, more ability to plan in advance.

2. From the worker's standpoint, he could plan his holidays in advance. Many of them would fall on Friday or Monday to give a 3-day weekend. Easter would be on the same day each year, April 14. Baydays on the 1st and 15th would always fall on a weekday.

Idea of a perpetual calendar is not new. George Eastman has been lobbying for years for a 13-month calendar plan; and Elisabeth Achelis, New York City, has spent large sums promoting a "World Calendar." There is wide support from statesmen, educators, and business and religious leaders for a more orderly plan to calendar a *most* orderly universe.

Joe Almanac says:

I'm going to go over all machinery to be sure it's in tip-top running order, and also fix up my shop. Then I'm going to add up my investment in each piece—and figure how many hours it'll be used this year. Maybe I could hire specialized work done for less, and use money for more needed machinery.



MARCH						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Birthstone: Aquamarine

Sentiment: Wisdom

Flower: Daffodil

Let us never forget that the cultivation of the earth is the most important labor of mankind.—Daniel Webster

30-MILE WIND HAS POWER OF 800 HORSES

A STIFF wind of 30 m.p.h. has the power of 800 horses as it blows through an area 180 ft. square. There are many spots on earth where folks have no coal or oil or water power, but lots of wind. Why not harness it?

That's exactly what the British hope to do with a new and far more efficient windmill. Its aluminum propeller sweeps in a circle 80 ft. across.

As the giant blades turn, centrifugal force hurls air out the slits on the end of the hollow blades. This creates a partial vacuum inside the hollow tower, and air is therefore drawn in through intakes at the bottom of the tower. This air drives an air turbine. Output is 100 kilowatts at a wind speed of 30 m.p.h. or over.

Pitch of the propellers keeps speed constant as wind increases from 30 to 65 m.p.h. Engineers estimate 500 such windmills in England could save 2 million tons of coal yearly, and provide energy at 0.35¢ per kilowatt-hour instead of 0.6¢ for present steam generation.

More than 80 sites have been selected in Britain, usually on well-shaped hills, 150 to 2,800 ft. high. Best sites have annual average wind speed of 28 to 30 m.p.h. Best locations are on hills, because a 30-m.p.h. wind approaching a hill may increase to 36 m.p.h. on top.

Main objection to windpower—it's fickle. Sometimes the wind doesn't blow, so you must have stand-by power or a method of storing the excess power generated. Methods of storage do show some promise. There are storage batteries, of course, but also indirect storage by either thermal, mechanical, or chemical means.

Many isolated farmers have used windmills for years, to pump water directly and to generate electricity.

Holland's windmills pumped back the sea from a third of their land, but now are in the custody of a Society to Preserve the Windmills.

These new developments may yet return us to this ancient source of power, inexhaustible but fickle.

Joe Almanac says:

I'm going to do some telephone farming. First I'll find out what our ag college recommends on fertilizer to get maximum yields for all my crops—and pasture too. Another phone call to my fertilizer dealer will get it spread. It's the easiest, quickest, surest way to make more money that I know of.



T APRIL 8						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Birthstone: Diamond

Sentiment: Innocence

Flower: Sweet Pea

Worry, the interest paid by those who borrow trouble.—George Washington Lyon

ANCIENT WEATHER FORMULA REVEALED

BEING new at this ALMANAC business, we were up a stump when it came time to predict daily weather a year in advance.

So we set out for the U.S. Weather Bureau, even though we knew their forecasters were not always certain of tomorrow's weather—let alone next year's. We thought a jocular approach might be best for this touchy subject.

"Say, do you have any secret and ancient formulas laying around that will give us a peek at next year's weather?" we asked, and made sure they could see our grin.

"No, unfortunately we don't," explained the scholarly scientist. "But what we can do is reveal to you the secret and ancient formula which most almanacs use to do their day-by-day forecast a year in advance."

We urged him to lose no time telling us, as we took out our secret notebook to get the formula word by word. And now we reveal it to you:

Check the long-range weather records for each month. For instance,

let's say records show November in your area has an average of 10 days of clear weather, 7 cloudy days, 7 partly cloudy days, and 6 days of rain.

Then take 30 marbles: 10 white ones representing clear days; 6 green ones, "rain"; 7 black ones, "cloudy"; 7 yellow ones, "partly cloudy."

Put marbles in a hat and jiggle until well mixed up. Then have a neutral observer, such as a 5-year-old child, take out the marbles one by one as you note the color.

If the first marble withdrawn is white, Nov. 1 will be sunny. If the second is black, Nov. 2 will be cloudy—and so on through the 30 days.

That's the ancient formula for forecasting weather a year in advance. Since you now share the secret, you can have the fun of making your own year-in-advance forecast. The odds are with you that you'll be more right than wrong.

Would it be superfluous to add: "All ALMANAC forecasters must have all their marbles"?

Joe Almanac says:

Since our children are our most valuable country crop, I'll go out of the way to help my kids "make the best better" in 4-H club work. Not to help them win awards, but teach them to achieve on their own. And I promise my Future Farmer son: "It won't be 'your pig and dad's hog—your calf, and dad's cow.'"



Birthstone: Emerald

Sentiment: Love

Flower: Lily of the Valley

Liberty has never come from the government. Liberty has always come from the subjects of it.—Woodrow Wilson

"DEW-FALL" ADDS 10 INCHES OF MOISTURE

How MUCH dew-fall do you get? In a year's time, dew added 10 in. of moisture to the land at the Soil and Water Conservation Research Branch, Coshocton, O., says L. L. Harrold, director.

And an inch of dew is just as important and valuable as an inch of rainfall. The maximum dew observed in a single day has been 0.04 in. Increase in moisture overnight in a bare field has been 0.07 in.

Although much of the dew on vegetables is evaporated in the morning sunshine, there is little or no water pulled from the soil by plant transpiration as dew is being evaporated. So the dew helps conserve soil moisture—and therefore is as useful as the same amount of rainfall.

Actually there's more dew-fall on bare ground, or on land where hay has just been cut, than on land with good vegetative cover. Hot days and cool nights are most conducive to dew. Valleys get more than hills.

Joe Almanac says:

Our family project this month is Homestead Planning. We're naming our farm Oak Hill Farm and putting up a sign which Jim is making. We're tearing down the old chicken house, and any new building from now on must fit into our "Farmstead Plan." Yes, and there'll be more shrubbery and flowers.

FRESH WATER FROM SEA?

THE Kuwait Oil Co. is distilling more than 600,000 gal. of fresh water a day from the salty Persian Gulf. Water is distilled in three big cylindrical vessels which give 1 gal. of fresh water from 2 of salt water.

So it looks as if it may soon be practical and profitable to de-salt sea water for drinking and irrigation. And in places like Texas and California that's bigger news than oil wells.

Rain-making Controls

CALIFORNIA, Colorado, Massachusetts, Nevada, New Mexico, Oregon, Wyoming, and Utah have passed rain-making laws—mostly requiring permits to practice weather modifications. They don't want some unknown party on the back forty cloud-seeding on his own. Congress is also currently considering a bill to set up a rain-making commission.



Birthstone: Pearl

Sentiment: Wealth

Flower: Rose or Honeysuckle

There are the Do's, the Don'ts, and the Can'ts. The Do's accomplish; the Don'ts oppose; the Can'ts fail.

HARNESS SUN'S RAYS TO DO YOUR CHORES

A SOLAR engine can be built which would take power from the sun to heat and light your house, pump water for irrigation, and do other odd jobs around the farm. That's the opinion of Dr. Charles S. Abbot, Smithsonian Institution, Washington, D.C.

All of our coal, gas, and oil supplies will be exhausted 69 years from now, predict some experts. Even atomic power must come from materials which are rapidly used up—and scarce to begin with.

Therefore, why not use solar power from the sun, which is potent beyond words to describe. In one hour the sun's radiation on the earth contains as much energy as 21 billion tons of coal.

If you have a 160-acre farm, you get more solar energy in a week than was released by the atomic bomb at Hiroshima. Between sunrise and sunset, the sun will pour out more energy than man has used on earth since the beginning of time in the form of muscle, water power, and fuels.

Dr. Abbot's suggestion: A mirror 10 x 11 ft. automatically kept at right angles to the sun's beams. The mirror focuses sun rays on a vacuum-jacketed pyrex glass tube, containing a liquid that has a very high boiling point and is thick enough to be perfectly absorbing.

Dr. Abbot figures he can catch enough heat in his boiler to develop nearly 2 hp. In arid regions, estimating 10 hours of sun a day for 300 days a year, at 1½-hp. output, this provides 4,500 hp.-hours.

A 5-hp. boiler could be built and sold at retail for \$1,500, believes Dr. Abbot. At that rate it would be able to compete with coal or diesel. Dr. Abbot says a solar boiler is very much in demand in Australia, India, and Israel—but no manufacturer has shown enough interest to build them.

Solar research? We have spent 10,000 times as much money on atomic energy as solar energy—yet most scientists agree that our long-time future lies with solar energy.

Joe Almanac says:

Nothing like proving things to yourself. That's why we're making at least two experiments this year. One is four rows of extra-thick corn planting. Another is with soil conditioner—using that in the garden. We'll keep records and see how things turn out.



Birthstone: Ruby Sentiment: Freedom Flower: Larkspur

Attempt the end, and never stand to doubt; nothing's so hard but search will find it out.—Robert Herrick

CAN MAN REALLY INCREASE RAINFALL?

WHAT'S the truth about "rain makers"? Is cloud seeding a science with promise? There are three schools of thought:

- 1. The "weather modifiers," who are selling their services to farmers and ranchers and orchardists for millions of dollars, quickly say they do not "make rain"—they only "increase rain." They don't make weather—just "modify" it. With silver-iodide crystals they trigger clouds into dropping more rain. And they point to many happy farmers in the arid West who've been showered with life-giving moisture. A Colorado "evaluation" commission says, "Yes, weather modifiers increased rain in that state by 12%."
- 2. There are those who think that the weather modifiers may be able to increase rainfall slightly, but say that it's impractical because it won't give enough rain when it's needed. There's also the difficulty of making it fall where it's wanted—

and the threat of lawsuit if you mess up a politician's picnic or catch someone with his hay down.

- 3. Last are those who are skeptical about the whole thing. Among them is the U.S. Weather Bureau, although it's been edging up to the No. 2 School of Thought. This year it conducted "rain-increasing experiments" near Seattle, Wash.—which, incidentally, has the heaviest rainfall in the United States. Researchers at the Universities of Missouri, Arizona, Chicago, and Nebraska also are experimenting.

The weather modifiers offer proof they've increased snow pack in the mountains and therefore provided more irrigation water run-off in the summer; prevented hail from ruining orchards; revived parched rangeland.

Pessimists say, "Buck Rogers stuff."

Looks as if weather will continue to be the No. 1 topic of conversation.

The Almanac says:

This is jack-of-all-trades month. You spot weld machinery . . . fix up granary space in the old barn . . . decide whether it'll pay to sidedress corn . . . worm your pigs . . . hunt up extra help . . . convince the banker you need more short-term credit . . . perform an emergency operation to save a bloated steer . . . put in long hours . . . and still not be grouchy when the wife asks you to plow the garden.



AUGUST						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



Birthstone: Sardonyx

Sentiment: Friendship

Flower: Poppy

It's the man who stops learning whether he is 20 or 80 who is really old.—Henry Ford

MAN-MADE WEATHER INCREASES ANIMAL GAIN

MAN-MADE weather can improve livestock efficiency, researchers say.

- Heavy hogs make most economical gains when temperature is at 60° F.; lighter hogs do best when temperature is at 70° F.
- Dairy cows give 50% less milk when temperature goes above 80° F.
- Hens lay best when temperature is between 50° and 60° F.

"But can farmers put man-made weather to use for them—at a profit?" ask Purdue Univ. researchers. To get the many answers to that question, Purdue has just built a \$100,000 climatic lab. Engineers and livestock scientists, and industrial and farm groups, are all cooperating.

Univ. of California research shows that hogs make the most efficient gains at temperatures of 60° to 75° F. They gain least when it's hot. Would it pay to keep temperatures down? Purdue intends to find out.

"Maybe one answer will be a heat pump, which cools in summer and

warms in winter," suggests Dr. Fred Andrews, Purdue livestock researcher.

"Perhaps such simple things as spraying roofs of hog shades with aluminum or white paint to bounce off a lot of heat rays might help. We intend to find out if it would pay for the price of the paint."

Purdue will experiment at first on hogs and sheep. Working with dairy cows at Univ. of Missouri's climatic lab (reported in our 1954 ALMANAC), Dr. Samuel Brody has discovered many valuable facts. For example: Milk production of cows drops 50% when heat goes above 80° F.

Several farmers are experimenting with air conditioning for hogs. One South Carolina farmer uses a mist spray with electric fans in open-air hog houses, to cool his hogs in summer. As a result he gets them to market weights at 5 to 6 months.

California poultrymen use mist spray to cool laying hens in cage shelters.

Joe Almanac says:

We've worked from CAN SEE to CAN'T SEE this summer, so now two "play" projects: First, we'll build a farm pond to be stocked with bluegill and bass. Then we're going to pile the family into the car for a week's trip to Washington, D. C. The more we know about our country's past and present, the better citizens I think we'll be.



Birthstone: Sapphire

Sentiment: Virtue

Flower: Aster or Morning-glory

*For ever and ever, it takes a pound
to lift a pound.*—Ralph Waldo Emerson

"WHY NOT BUILD AERIAL WELLS?"

"WHY NOT tap the air for water? The Greeks did it 2,500 years ago—why can't we?" asks Dr. Hans F. Winterkorn, Princeton Univ.

In 500 B.C. the Greeks of Theodosia on the Black Sea built large mounds of broken limestone on hills above the town. From these, in a climate like California's, they got 2 million gal. water daily. As water-laden night winds from the sea passed through the mounds, surfaces of the stone *adsorbed* moisture. By day the stone released the moisture.

What modern evidence is there?

- 1. Mediterranean peasants know the value of moisture-collecting stones; they build little stone walls around their vines and olives. And the Scots still know how to build "dew ponds."
- 2. Plants have been observed that grow with insufficient or no visible water supply.
- 3. Water has accumulated under airport pavements or roads in deserts without precipitation or ground water.

- 4. Small aerial wells have been built by the French scientist Chaptal.

Dr. Winterkorn is a soil-stabilization expert. He cites the example of several years ago when a bituminous road in the Imperial Valley, California, failed because water accumulated in the subgrade—although there had been no rainfall, and groundwater level was too far away for capillary action. His conclusions: "The road became an air well. Similar failures have come from airports on deserts."

Says Dr. Winterkorn: "We have a better scientific understanding of the aerial well than the Greeks did. We have the advantage of synthetic materials. We have all sorts of mechanical and electrical devices.

"Why do we not put all of this knowledge and ability together and develop better aerial wells than the Greeks ever thought of, not only to solve our own water problems on the West Coast, but to help the Arabs, Israelites, and other nations?"

The Almanac says:

The kids and I are calling this wife-and-mother month. We're going to insist she take a week's vacation. Then we're going to put out a dwarf fruit orchard of a dozen trees which will produce in 2 years; and we'll remodel the basement into a recreation room.



Birthstone: Opal

Sentiment: Hope

Flower: Calendula or Cosmos

A smile is a bridge two persons can walk; a frown is a chasm one must leap.

THE PROS AND CONS OF "WELL WITCHING"

Is it possible to "witch" a well?

The U.S. Geological Survey says: "It is difficult to see how for practical purposes the entire matter could be more thoroughly discredited, and it should be obvious to everyone that further tests by the U.S. Geological Survey of this so-called 'witching' for water, oil or other minerals would be a misuse of public funds."

In England skeptical scientists recently held a "blind" contest over there between water diviners. Dowsers walked over area where there were both dry wells and some with water, the locations of these being unknown to the diviners. No two diviners agreed on where water was or wasn't.

Jerry Smith, a mechanical engineer from Barstow, Calif., has located over 200 wells with a forked stick in an area not noted for its water.

Take the Coolwater Ranch, north of Daggett, Calif. Many dry holes had been drilled there. The best well

pumped only 270 gal. per minute. Then Jerry was called in. He cut a forked stick from a creosote bush and went to work. After some time, he told the manager: "Drill here and you'll get a good one."

The manager was skeptical. "How much will we get?" he asked.

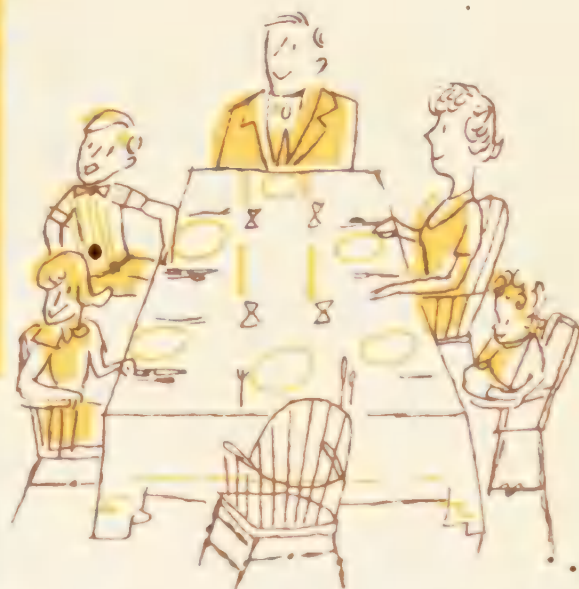
"2,500 gal. a minute," said Jerry.

The well was drilled—and is now pumping 2,800 gal. a minute. Since then Jerry has located five more wells on the ranch. It previously had to be irrigated by water brought in 5 mi. by pipe and ditch.

The story of Henry Gross, Maine dowser, has been told in two books—*Henry Gross and His Dowsing Rod* and *The Seventh Sense* by Kenneth Roberts. Henry has the rare gift of being able to locate water, tell you how deep it is, and say how much is there, says Author Roberts. Evidence is offered that Gross can also successfully dowse from a map.

Joe Almanac says:

I'll catch up on the reading part of farming. I'll dig out my Farm File where I've put farm magazine stories in folders on Corn, Hogs, Garden, Fertilizer, Machinery, etc. Reading is sometimes more important than working up a sweat. The man who works up the most sweat isn't the fellow who makes the most money. His nose is so close to the grindstone he never sees, hears, or learns of the newer, easier, more profitable way until the parade's gone by.



Birthstone: Topaz

Sentiment: Fidelity

Flower: Chrysanthemum

Protect the birds. The dove brings peace, and the stork brings tax exemptions.—George Bernard Shaw

ANSWERS TO OUR WEATHER QUIZ (PAGE 115)

HERE ARE the answers to the Weather Quiz on page 115. If you got 16 correct, you are more accurate than the Weather Bureau's prediction of tomorrow's weather. And 13 is passing.

1. *False.* Lightning rods catch the terrific surge of electricity and conduct it into the ground harmlessly.

2. *True.* Buildings hold heat. Also, smoke pall over a city, like a smudge pot in an orchard, holds heat.

3. *False.* Here's the forecaster's lingo explained: "Risk of showers"—0 to 15%. "Widely scattered showers"—15 to 30%. "Scattered showers"—30 to 45%. "Showers"—45 to 75%. "General showers"—75 to 100%.

4. *False.* Sundogs are caused by reflection or refraction of sunlight by ice crystals in the upper atmosphere. They usually mean a storm is coming.

5. *True.* A 24-mile wind approaching may blow at 30 m.p.h. on top.

6. *False.* Chances are 1 in 1,203.

7. *True.* Falling barometer pressure, indicating changing weather, does sometimes affect one's feeling.

8. *False.* Tight corn husks, thick

fur on 'coons, big supply of nuts stored by squirrels—these have no relationship to weather coming up.

9. *True.* Weather Bureau in Washington found one 4 in. in diameter.

10. *False.* You're safer inside.

11. *True.* Farmers' "hunches" are based on subconscious observation and years of experience.

12. *True.* Rain is quite fickle.

13. *False.* Even the "rainmakers" say they can only *increase* rainfall.

14. *False.* Record winter snowfall was 73½ ft., in the Sierra Nevada Mountains in California, 1906-07.

15. *False.* Varden Miles, Wayne Univ., studied 333 weather maxims dating back to Biblical times. Only one-fourth had any truth.

16. *True.* Weather records show northern U.S. has been several degrees warmer in recent years.

17. *True.* Radar can be used to track approaching rainstorms.

18. *False.* Although some private meteorologists disagree, U. S. Weather Bureau says long-range weather forecasting is still very sketchy.

Joe Almanac says:

This is the month to give thanks for a country where a man can do what he wants to do . . . where our children can grow up to be what they want to be . . . where Nature has been most fruitful. We're the luckiest folks in the world.



Birthstone: Turquoise

Sentiment: Success

Flower: Narcissus or Holly

Systematize your farm business and keep an eye on small expenses. Small leaks have sunk great ships.

PILOTS SELL SUNSHINE

A COUPLE of ex-Navy pilots will sell you sunshine. They have done it for Medford, Ore., in "Operation Sunshine."

On days when a heavy pall of fog settled down over this Rogue Valley town, Harvey Brandau and Eugen Kooser would take to the air in their single-engine plane and dump handfuls of salt into the air. Results were almost spectacular.

They could let the sunshine through in less than an hour. And in addition to producing sunshine for the Chamber of Commerce, they've opened up holes in the fog so planes could land at the airport.

These pilots have also protected the orchardists in the valley from hail for the past 3 years. Every time a thunderstorm appeared on the horizon, they'd "shoot" the clouds to prevent hail from forming.

COLORED SNOW?

IF SNOW were some other color, it would melt sooner in the spring, and

the ground would warm up sooner. So scientists are debating the feasibility of dyeing snow to get it to melt earlier, reports Dr. R. A. Morgan, National Science Foundation. The white surface of snow reflects some heat that would be absorbed by a dark surface.

CANTANKEROUS? MAYBE THE BAROMETER'S FALLING

STEER CLEAR of business deals—even of debate with friends—when the barometer is falling, say psychologists. For a falling barometer makes humans moody, cantankerous, and hard to predict—and hard to get along with.

And animals too. That's why you see a normally placid cow suddenly jump stiff-legged into the air and dash madly around the lot before a storm.

"So go fishing on a falling barometer. And wait for a rising barometer, when you'll find humans more happy and pleasant and easy to deal with," says Wm. J. Baxter, who calls himself a weather economist.

Goe Almanac says:

I'm going visiting this month. First to the ag college to get the latest dope on livestock and crop production. Next, from ag-college specialists I will get names of about five of the most successful farmers in the state with a setup like mine. Then I'll visit them—a business call to get pointers.

GRANDDAD'S RIGHT: EARTH IS GETTING WARMER

DON'T SNICKER when Granddad says: "Now when I was a boy, the winters used to be lots colder." They *were* colder, both records and experts agree. The earth's warming up!

Washington, D.C., has only one-third as many below-freezing days as it did 50 years ago. Toronto, Canada, has a mean annual temperature of 50° today—same as Washington in 1900. Spitzbergen, in the Arctic, is 10° warmer.

To farmers this means the frost line is creeping north; fruits and vegetables have longer seasons. Corn is raised 500 mi. farther north than 30 years ago. 'Possums have migrated as far north as Michigan, and turkey buzzards now fly over Minnesota.

But Chicago won't go tropical overnight, even though Dr. F. W. Reichelderfer, Chief, U. S. Weather Bureau, admits it might warm up 4° or 5° or 6° in the next 100 years.

Biggest scare: A 3° rise in the earth's temperature, says one geographer, would melt a lot of polar ice and raise ocean levels enough to flood port cities like New York and Philadelphia.

NO, WE'RE NOT RUNNING OUT OF WATER

ARE WE running out of fresh water? No, says the man who should know—C. G. Paulsen, chief hydraulic engineer, U. S. Geologic Survey. He says flatly:

1. We have as much water as we ever had.

2. Water shortages are primarily local in character, where a city or town tries to get all of its water from one well.

3. "We have become water gluttons, demanding that Nature give us vast quantities of water at localized sites of our own choosing."

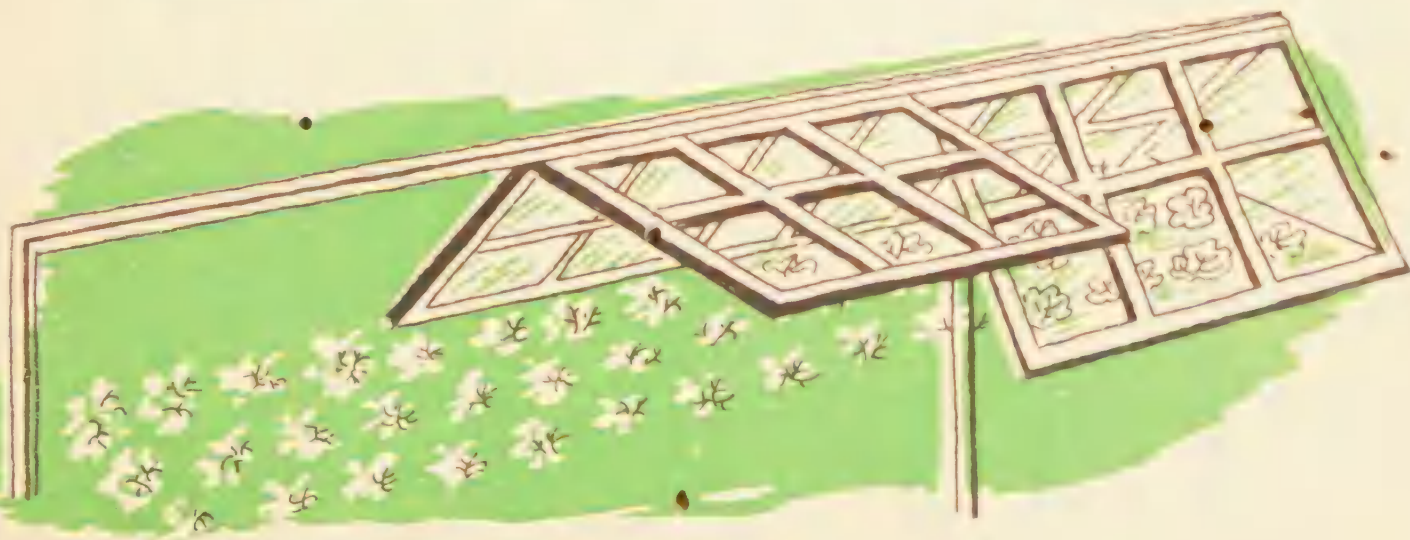
Nature has given us a sort of perpetual-motion machine for handling water. Sun powers the evaporation, the water comes down as rain or snow, it moves out to sea, it evaporates—and we're getting as much water as we've ever had.

Paulsen estimates that as high as 70% of water that falls as rain or snow is lost by evaporation or the process of transpiration from trees. Some engineers believe that about 25% of the rainfall could be saved for ground-water reservoirs by trimming no-good trees from forest areas.

PORTABLE HOTHOUSE

TO MAKE a portable hothouse, hinge together glass frames or plastic screens in the center to make a tent. Start

plants right in the garden, where they don't have to be transplanted.





YOUR INSECTICIDE GUIDE

DURING ONE summer, a pair of house flies can become the parents and ancestors of 191,010,000,000,000,000,000 flies. Add to that another staggering fact: Experts have counted 623,000 different insects, of which the fly is only one.

No wonder the American farmer has a big bug bill to pay! It's estimated at **FOUR BILLION DOLLARS** a year. Cattle grubs alone cost the farmer \$100 million; bloodsucking flies, another \$100 million. If unmolested, corn borers can make hash of your corn field; worms can maul your cabbage patch; and the lowly louse will raise havoc with livestock profits. The boll weevil alone does \$400 million worth of damage a year.

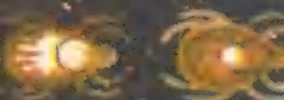
But to oppose this formidable enemy, the farmer no longer has to stand with puny fly swatter in hand. The chemical industry has turned out a whole flock of potent weapons which are today saving farmers millions of dollars.

More important, today's insecticides are protecting human health. Take DDT: this miracle concoction has saved the lives of 5,000,000 persons! More than 100,000,000 illnesses have been prevented. This is the estimate of Dr. Edward P. Knipling, U.S. Department of Agriculture, who is in charge of research on insects affecting man and animals.

It's hard to remember the tongue-twisting names, the various insects and how to control them. So we're proud to present on the next six pages the most concise, yet complete, Insecticide Guide we've ever seen. Compiled by research men in the U.S. Department of Agriculture in cooperation with the editors of *Country Gentleman*, it is presented through the courtesy of *Country Gentleman*, in which it was first published.



CATTLE



OX WARBLE—Rotenone: Spray, dip, or wash in fall and winter when grubs appear on animals' backs.

BITING FLIES, HORN FLIES, STABLE FLIES, HORSEFLIES—Methoxychlor, pyrethrum, or organic thiocyanates: Spray in summer.

SCREW WORM—EQ-335 or EQ-62: Ointment. Apply to wounds in spring and summer.

TICKS—Rotenone or pyrethrum: Spray in summer.

LICE—Rotenone, methoxychlor, lindane, or pyrethrum: Spray or dust in winter.

LICE—Toxaphene, DDT, TDE, methoxychlor, or lindane: Spray or dip in fall or when needed.

SCREW WORM—EQ-335 or EQ-62: Ointment. Apply to wounds in spring or summer.

MANGE—Lindane: Spray in winter.

LICE—DDT, sodium fluoride: Dye before cold weather.

Nicotine sulphate or lindane: Paint on roasts before cold weather.

MITES—Lindane, carbolineum, or nicotine sulphate: Paint on roasts in summer.

Lindane or DDT: Spray in house in summer.

TICKS—Lindane or DDT: Spray in house in summer.

LICE—DDT, toxaphene, lindane, TDE, methoxychlor, chlordane, or rotenone: Dip or spray soon after shearing.

SCREW WORM—EQ-335 or EQ-62: Ointment. Apply soon after shearing.

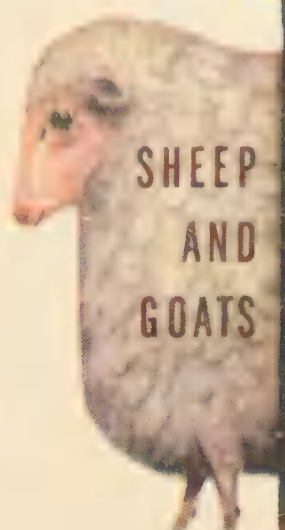
SHEEP TICKS—DDT, rotenone, TDE, lindane, methoxychlor, or chlordane: Dip or spray soon after shearing.



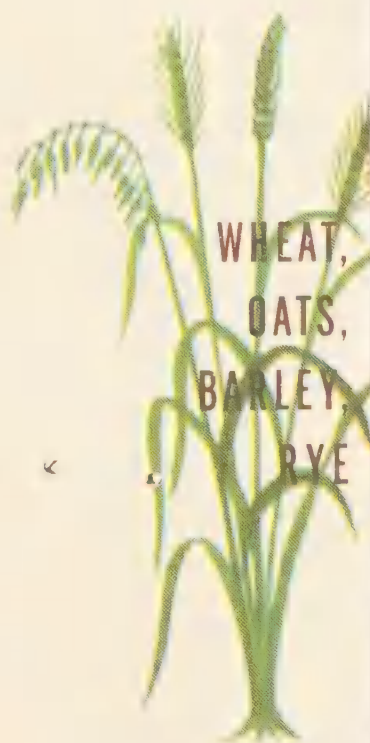
HOGS



POULTRY



SHEEP AND GOATS



EUROPEAN CORN BORER—DDT or ryania: Spray or dust when extensive leaf-feeding noted on corn 35 in. or more high.

CORN-EAR WORM—DDT in mineral oil or emulsion: Spray at silking.

ARMY WORMS—TDE, DDT, or toxaphene: Spray or dust when insects or damage noted.

CHINCH BUGS—Chlordane, dieldrin, or toxaphene: Spray in late June or early July when migration to corn begins.

WIREWORMS—Aldrin: Soil application—generally in spring at planting time.

GRASS WORMS—Aldrin: Soil application—generally in spring at planting time.

WHITE WORMS—Aldrin: Soil application—generally in spring at planting time.

JAPANESE BEETLE EGGS—Aldrin: Soil application—generally in spring at planting time.

GREEN ABE—Parathion, Metacide, or TEPP: Spray or dust in early spring.

CHINCH BUG—Toxaphene, chlordane, or DDT: Spray in spring before migrations to cereals.

GRASSHOPPERS—Aldrin, toxaphene, or chlordane: Spray, dust, or bait when nymphs observed, or when adults or damage noted.

ARMY WORMS—Toxaphene, chlordane, DDT, or TDE: Spray, dust, or bait when insects or damage noted.

CUTWORMS—Toxaphene: Spray, dust, or bait as soil surface treatment when insects or damage noted.

MORMON CRICKETS—Aldrin, toxaphene, or chlordane: Bait when insects or damage noted.

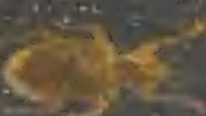
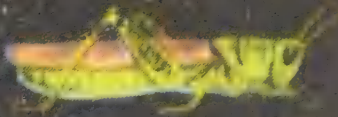
WIREWORMS WHITE WORMS—Aldrin: Spray on soil and cultivate in spring before planting.

PASTURES OR GRASS LANDS

ALFALFA

FORAGE CROPS

STORED GRAIN



GRASSHOPPER—Aldrin, chlordane, or toxaphene: Spray or dust when nymphs appear or damage noted. Do not feed forage contaminated with these insecticides to dairy animals or to meat animals being finished for slaughter.

WHITE-FRINGED BEETLE ADULT—Cryolite or DDT: No special precautions. Spray or dust when insects or damage noted.

WHITE-FRINGED BEETLE LARVAE—DDT: Soil treatment before spring planting.

ARMY WORMS—Toxaphene, DDT, or TDE: Spray or dust when insects or damage noted. Do not feed hay orilage from crops treated with these insecticides to dairy animals, poultry, or meat animals being finished for slaughter, or pasture animals on treated crops.

ALFALFA WEEVIL ADULT—Chlordane, dieldrin, or heptachlor: Spray in spring when plants are $\frac{1}{2}$ to 2 in. tall. Do not allow dairy animals or meat animals being finished for slaughter to graze until after the first cutting.

ALFALFA WEEVIL LARVAE—Methoxychlor, parathion, aldrin, lindane, or heptachlor: Spray or dust when leaves become ragged. Do not cut hay for 14 days after use of parathion. Do not graze animals for 15 days after aldrin or lindane, or for 3 days after heptachlor.

GARDEN WEBWORM—Toxaphene: Spray or dust when insects or damage noted. Do not feed treated forage to dairy cows, poultry, or meat animals being finished for slaughter.

RED HARVESTER ANT—Dieldrin, chlordane: Dust only active nest areas. Do not apply to vegetation that may be eaten by man, dairy animals, or animals being finished for slaughter.

POTATO LEAPHOPPER—Methoxychlor: Spray when insects or damage noted. No special precautions.

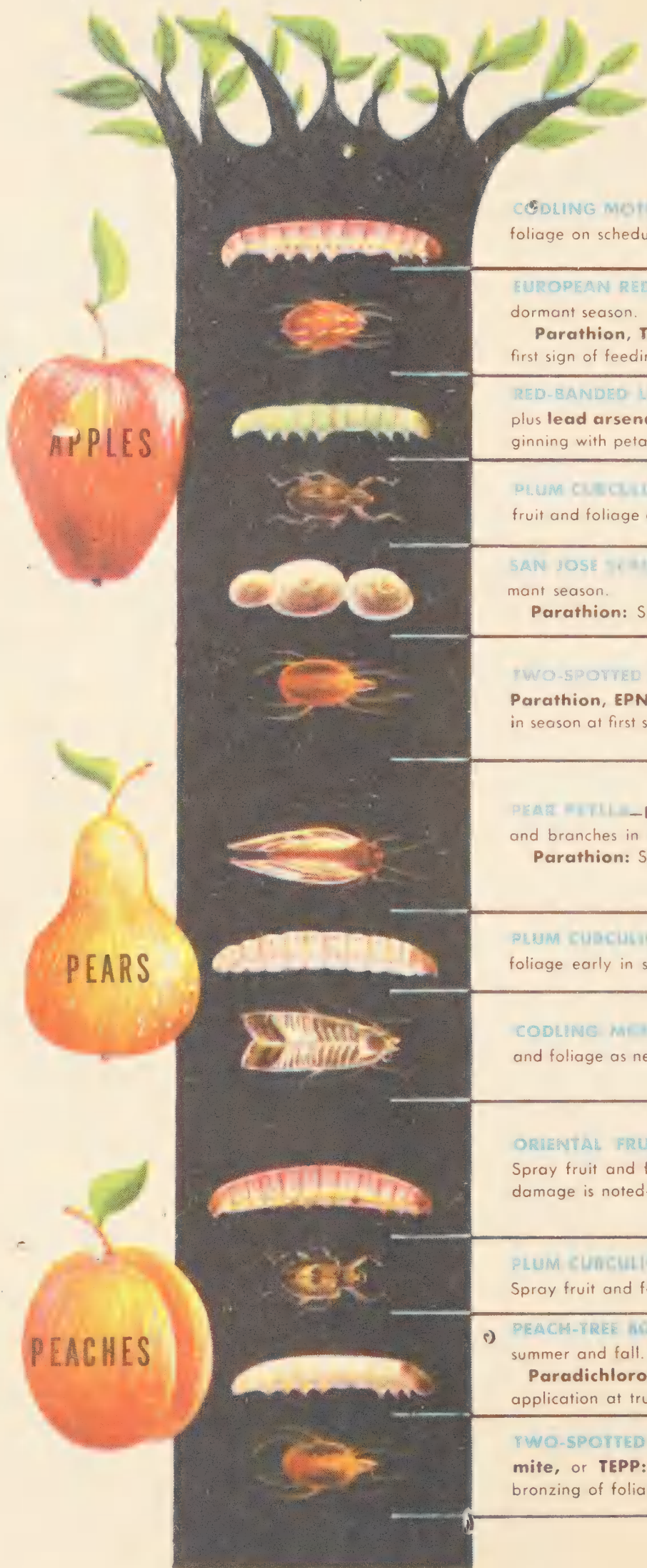
ALFALFA CATERPILLARS—Methoxychlor: Spray when insects or damage noted. No special precautions.

VELVET BEAN CATERPILLARS—DDT, toxaphene, or methoxychlor: Apply when insects noted. Do not feed forage treated with DDT to dairy or meat animals, or poultry. Allow 40 days between toxaphene and cutting crop.

WEEVIL—DDT, methoxychlor, or synergized pyrethrum: Spray bin walls before binning new crop.

BEAN BEETLE—Grain-protectant dust: Mix with grain during binning.

MOths ETC—Ethylene dichloride plus carbon tetrachloride or carbon disulphide plus carbon tetrachloride: Fumigant for use after storage or as needed.



CODLING MOTH—**DDT** or **lead arsenate**: Spray fruit or foliage on schedule, beginning with petal fall.

EUROPEAN RED MITE—**Oil**: Spray trunk and branches in dormant season.

Parathion, TEPP, EPN, or Aramite: Spray foliage at first sign of feeding injury.

RED-BANDED LEAF HOPPER—**TDE, parathion, or DDT** plus **lead arsenate**: Spray fruit and foliage as needed, beginning with petal fall.

PLUM CURCULIO—**Lead arsenate** or **parathion**: Spray fruit and foliage early in season.

SAN JOSE SCALE—**Oil**: Spray trunk and branches in dormant season.

Parathion: Spray foliage when crawlers observed.

TWO-SPOTTED SPIDER MITE AND RELATED SPECIES—

Parathion, EPN, Aramite, or TEPP: Spray foliage early in season at first sign of feeding injury.

PEAR PSYLLA—**Dinitro compounds** or **oil**: Spray trunk and branches in late winter when adults become active.

Parathion: Spray foliage in summer as needed.

PLUM CURCULIO—**Lead arsenate** or **parathion**: Spray foliage early in season.

CODLING MOTH—**DDT** or **lead arsenate**: Spray fruit and foliage as needed, beginning with petal fall.

ORIENTAL FRUIT MOTH—**EPN, DDT, or parathion**: Spray fruit and foliage early or late in season as soon as damage is noted—about 7-8 and 3-4 weeks before harvest.

PLUM CURCULIO—**Parathion, EPN, or lead arsenate**: Spray fruit and foliage early in season.

PEACH-TREE BORER—**DDT** or **parathion**: Spray trunk in summer and fall.

Paradichlorobenzene or **ethylene dichloride**: Soil application at trunk in the fall.

TWO-SPOTTED SPIDER MITE—**Parathion, EPN, Aramite, or TEPP**: Spray foliage early in season or when bronzing of foliage noted.

Roy. H. H. H.

PLUMS
OR
PRUNES



PLUM CURCULIO—Lead arsenate, parathion, or EPN: Spray fruit and foliage early in season.



CHERRIES



PLUM CURCULIO—Lead arsenate, parathion, or EPN: Spray fruit and foliage early in season.



CHERRY FRUIT BORER—Lead arsenate, rotenone, parathion, or methoxychlor: Spray fruit and foliage early in summer.



GRAPES



GRAPE BERRY MOTH—DDT or parathion: Spray foliage and fruit on schedule from early in season.



GRAPE LEAF MINER—DDT or nicotine sulphate: Spray foliage before blossoming. Give follow-up spray as needed.



BEANS



BEAN LEAF BEETLE—Rotenone, malathion, parathion, CS-708, or methoxychlor: Spray or dust when foliage feeding noted.



BEAN LEAF BEETLE—Rotenone, malathion, parathion, CS-708, or methoxychlor: Spray or dust when foliage feeding noted.



BEAN MOTH—DDT, methoxychlor, or parathion: Spray or dust when foliage feeding noted.



BEAN APHID—Nicotine sulphate: Spray or dust when foliage feeding noted.



BEAN APHID—Sulphur: Dust when foliage feeding noted.



CABBAGE



IMPORTED CABBAGE WORM—DDT prior to heading, rotenone thereafter: Dust when one or more worms per plant or foliage damage noted.



DIAMOND-BACK CABBAGE WORM—DDT prior to heading, rotenone thereafter: Dust when one or more worms per plant or foliage damage noted.



CABBAGE LOOP—DDT prior to heading, rotenone or pyrethrum thereafter: Dust when one or more worms per plant or foliage damage noted.



CABBAGE APHID—Parathion, malathion, or TEPP: Spray or dust when insects first noted.



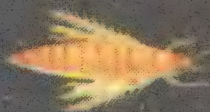
CELERY



CELERY LEAF TIER—**Pyrethrum**: Dust when insects first noted.



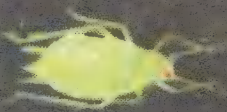
ONIONS



ONION THRIPS—**DDT**: Spray or dust when plants 6-10 in. high.



PEAS



PEA APHID—**Parathion, TEPP, or DDT**: Spray or dust when one or more aphids per plant on small plants.



PEA WEEVIL—**DDT, methoxychlor, rotenone, or parathion**: Dust before pods form if 5-minute blossom examination shows any weevils.



COLORADO POTATO BEETLE—**DDT**: Spray or dust when insects or damage noted.



POTATO FLEA BEETLE—**DDT**: Spray or dust when insects or damage noted.



BLISTER BEETLES—**DDT**: Spray or dust when insects or damage noted.



LEAFHOPPERS, APHIDS—**DDT**: Spray or dust when insects or damage noted.



SWEET POTATOES



SWEET POTATO WEEVIL—**DDT**: Spray bin walls before storage in fall.
Dieldrin: Dust seed bed prior to sprouting.



TOMATOES



TOMATO FRUIT WORM—**DDT or TDE**: Spray or dust when insects or damage noted.



TOMATO HORN WORM, FLEA BEETLES, APHIDS—**DDT or TDE**: Spray or dust when insects or damage noted.



Drawings by Maynard Reece, Reprinted with Permission of Country Gentleman Magazine



10

SECTION

COUNTRY LIVING

IN A recent poll, Americans were asked this question:

“Who do you think is happier—the man who lives on the farm or the man who lives in the city?”

A whopping 65% replied, “The man who lives in the country.” Only 21% thought the city dweller happier.

This points up the attraction Country Living holds for most people—be they dyed-in-the-wool dirt farmers or pavement pounders who “farm” in a window box and “ranch” with visits to the zoo. Country Living means all things to all people.

To those who feel “cooped-up,” it means elbow room and “wide-open spaces”. . . . To the smog-bound, it’s fresh air. . . . To worried parents, it’s having something for the kids to do, instead of harping at them to “keep out of trouble.”

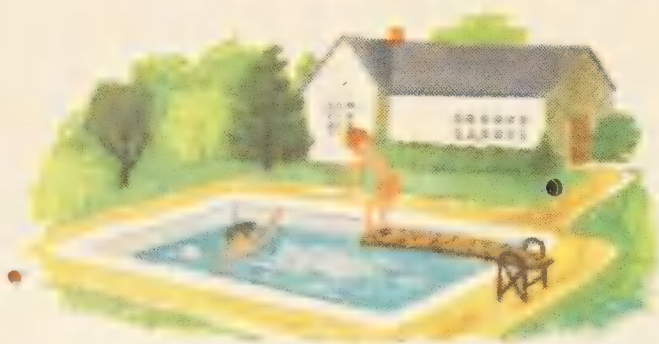
It’s cheaper living, with home-grown food and fresh strawberries from your freezer all winter. . . . It’s being your own boss. . . . It’s living close to Nature, and fishing, boating, and swimming in your own backyard. . . .

It’s having horsepower at your fingertips, for pleasure or for profit. . . . It’s owning land to cultivate intensively, or to use for a softball diamond. . . . It’s watching plants grow and helping livestock develop. . . . It’s the friendliness of country neighbors where you speak to the person you meet, whether you know him or not. . . .

It’s the wonderful 4-H Clubs with their learn-by-doing program. It’s barbecuing chicken over your outdoor fireplace. . . . It’s discipline of farm routine, the tonic of hard physical labor. . . . It’s the security of belonging when you reach retirement age. . . .

All of these and more are Country Living—living, we think, at its best.

BUILD A BACKYARD SWIMMING POOL



ALL BACKYARD swimming pools aren't in Hollywood. A growing number of them are in farmyards.

John Touissant, Cass Co., N. Dak., scooped out a hole 6 ft. deep, lined it with concrete poured over chicken wire. It cost about \$300 for a 50- x 22-ft. pool. They pump water from two sand points.

The Ervin Dittmers, in the same county, have a heated pool that cost ten times as much, but they can raise the temperature of their front yard pool 10 degrees in three hours—so they swim right up to October. The Dittmer boys like to take a dip during hot harvest season before lunch. It's something the whole family—yes, the whole neighborhood—enjoys. It be-

came so popular that they've had to set up a rule: Swimming by invitation only.

The more common farm pond is, of course, being built by the hundreds of thousands—for fishing, for swimming, for skating in winter. (And for profit, too—see page 157.)

You can even buy for your backyard a portable plastic pool that holds 7,000 gal. of water and makes a pool 20 ft. across and 3 ft. deep. The heavy plastic hooks over a fence, which holds it up to form the sides.

Build Farm Pond!

A dam on a small stream will do it. Or drainage from 10 crop acres will give enough water for a ½-acre "sky pond." You can raise 200 lb. of bluegills and bass a year in a one-acre pond.

See your local Soil Conservation District representative for engineering advice.

Color Movies

There are several sources from which you can borrow color movies, free, to show at meetings. One is the Farm Film Foundation, 1731 Eye St. N.W., Washington, D. C.

Many industrial concerns have film libraries. *The Grasslands Miracle* and *Deeper Acres*, put out by National Fertilizer Association, Washington, D.C., and *Making the Most of a Miracle*, from American Plant Food Council, Washington, D.C., concern fertilizer.

Of broad family interest are the following films in the Ford Film Library, 16400 Michigan Ave., Dearborn, Mich.: *American Farmer*, *American Cowboy*, *Waves of Green*, and *Hope of Tomorrow* (4-H club picture). All pictures are in vivid color with sound.

Many state agricultural colleges have film libraries. See also page 190.

Country Reading

HERE are a few sources of detailed information about farming and country living.

Your county agricultural agent has a list of bulletins available from the state experiment station. The U.S. Dept. of Agriculture, Washington, D.C., offers a thick book listing the titles of all farm bulletins available.

The Country Bookstore, Noroton, Conn., has a series of small booklets on all phases of country living—for pleasure and for profit. Interstate Publishers, Danville, Ill., has many specialized farm books; of special interest is *Living on a Little Land*. The *Ford Treasury of Favorite Recipes from Famous Eating Places* and its sequel, and the *Ford Treasury of the Outdoors*, published by Simon and Schuster, New York, also have a country appeal.

COME OVER FOR A BARBECUE!

ENTERTAINING with table linen and good china is so much work that you think twice before asking friends in for dinner. But master the art of barbecuing chicken over an outdoor fire—and both you and the guests will have fun.

You don't have a fireplace? That's no drawback. With 18 cinder blocks and a grill, a 12-year-old can build the barbecue pit or fireplace pictured below in 10 minutes. Or you can make it out of flat stones. For fuel use charcoal or hot coals from hardwood.

To Barbecue Broilers: Use broilers that weigh about 2 lb. dressed. Split them in half lengthwise, dip them into the barbecue sauce, then put them over the hot coals. Turn them about every 10 minutes, basting each time. It takes about an hour for them to cook. Test for doneness by moving the leg joint: it's done when the joint moves easily.

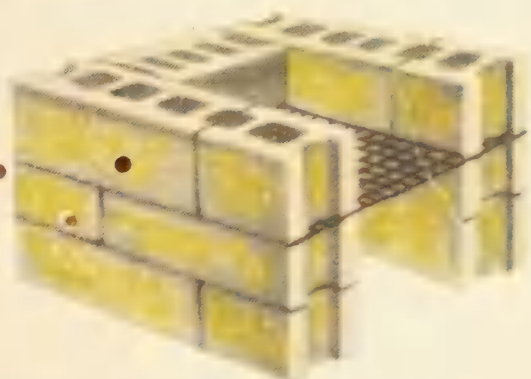
Two Sauces We Like

Barbecue Sauce I (Cornell)

½ cup cooking oil
1 cup cider vinegar
2 tablespoons salt
1½ teaspoons poultry seasoning
½ teaspoon white pepper
1 egg
Beat egg, add oil, and beat again.
Add other ingredients.

Barbecue Sauce II (USDA)

Mix: ½ lb. butter
1 cup water
2 cups vinegar or lemon juice
2 tablespoons salt
Heat the sauce and keep it well stirred.



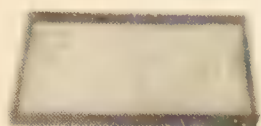
Cinder Block Fireplace



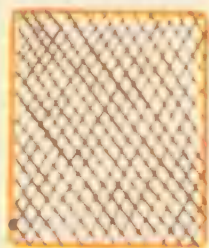
Stone Fireplace



Metal Wheelbarrow



Metal Pan for Coals



Wire Mesh for Grill



Metal Hooks



Result: Portable Fireplace

MAKING YOUR GRASS GROW GREENER

YOU CAN now have a lawn that stays green all summer, resists crabgrass, and doesn't have to be cut so often. It's the new Merion bluegrass now available to homeowners.

It's expensive—as much as \$4 a lb. retail—but here's what users say:

1. Spreads faster and will stand closer mowing than Kentucky Blue Grass. Needs less mowing, because of its spread growth.

2. Has darker green color and makes better turf. Stands heat and drouth better. Resists weeds better, particularly crabgrass. Resists diseases such as leaf spot.

3. Sowing rate is 2 lb. per 1,000 sq. feet. Because it is very expensive, you may wish to use a mixture that contains 50% Merion. It should not be less than 30% or 40%.

To sow Merion on present lawn:

1. Kill weeds and unwanted grasses with chemicals.

2. Rake well and mow as closely as possible.

3. Fertilize, seed, and rake in.

4. Water frequently until germination is established.

Best time to establish lawn is mid-August. Next best is early spring. Germination period is long—15 to 28 days, depending on the weather.



To Kill Moles

Stick hose in his burrow and drown him. Or run hose from exhaust pipe of your car or tractor, and stick it down burrow to gas him.

Let Chemicals Fight Crabgrass

Chemicals will fight your crabgrass battle more effectively than muscles!

1. Fertilize in early spring with a balanced mixture that encourages the good grass—3 to 4 lb. of 5-10-4, 6-10-4, or similar mixture per 100 sq. ft. Crabgrass can't stand shading or competition.

2. Apply pre-emergence spray in spring where dead crabgrass stems are found.

3. Hit growing crabgrass with PMA (phenyl mercuric acetate) in three sprays applied 10 days apart. Mix 2 oz. (of a 10% commercial material) in enough water to thoroughly cover 1,000 sq. ft. (Do not use PMA on Merion bluegrass.)

To Control Weeds

Use 2,4-D in spring before dandelions bloom, and in September, when grass will spread to cover bare spaces. Don't let it get on flowers or plants.

To Control Soil Insects

Chlordane will kill white grubs, chinch bugs, sod webworm, etc.

Shady Lawn

HAVING trouble growing grass under your shade trees? Try this:

1. Seed a dense shade variety.

2. Fertilize the lawn with 4 lb. of high-grade lawn fertilizer per 100 sq. ft.—in early spring, early May and early September.

3. Fertilize the *tree*, too. Use 1 lb. of 10-6-4 or similar fertilizer for each inch of circumference of tree measured 4 ft. above ground, says Edward Hume, Vermont horticulturist. Make holes with crowbar 15 in. deep, all over tree feeding area, slanting toward base of tree. Pour fertilizer solution down hole, using funnel to avoid burning lawn.

4. Give ground under tree a good soaking regularly. Remember—a tree alone may use 125 gal. in 24 hours.

WILD FLOWERS IN YOUR YARD

It is now as much against the law to pick a Jack-in-the-pulpit in Illinois as it is to shoot a buffalo in Wyoming. We're suddenly realizing that many of our wild flowers will go the way of the buffalo if not given the same protection by law. Many states now protect certain varieties of wildflowers.

Blossoms picked in the woods fade quickly when picked. You'll enjoy wild flowers much longer if you grow them in your own yard. Here are some which you can fit into your flower plantings:



Jack-in-the-pulpit needs rich soil and partial shade. It is not a colorful flower but has graceful lines and can add distinctive balance to plantings.



Violets are the symbol of spring. Easily transplanted, they're colorful in any perennial bed. They spread rapidly. Violets come in a variety of colors.



Columbine is found in open woods. Eastern species is scarlet and red; in the Rockies, it is blue; another is pure red. It is easily grown from seed, thrives well in border or rock garden.



Primroses, yellow or blue, can be scattered around the house and buildings. See how they perk up the yards until the grass gets established.



Ladyslipper is a showy blossom but needs to be transplanted carefully to avoid damage to roots and stems. Leave original soil around plant when digging it.



HOW TO MAKE AN "ARRANGEMENT"

TO MORE than a quarter of a million garden club members—both men and women—a bouquet of flowers is no longer a bouquet. It's an "arrangement." And whether you go in for garden-club competition or merely want to make the most of your flowers in your home, here are some of the basic points to help you make flowers something besides pretty blossoms.

The allotted points are from the scoreboard of the National Council of State Garden Clubs:

Relation to Container (10 points): Suppose you're taking the flowers to a sick boy. A toy truck full of asters or

zinnias from your garden will be more welcome, we promise you, than orchids from a florist.

Suitability of Combination of Material (10 points): This involves color, lines, fragrance, size, and type of flowers. Lilacs with tulips are a natural for spring. Bridal-wreath branches and iris go well together.

Condition (10 points): "Dry water" is a new wrinkle to help keep your arrangement fresh and "in place" during transportation. Powdery, plastic material is wet when put into vase. It both holds stems in place and serves as an antiseptic, slowing growth of bacteria which cause early wilting.

Design (25 points): Good arrangements don't "just happen." There must be a planned relationship between the various flowers, between flowers and foliage, and between flowers and container. Here's a good example of a triangular arrangement.



Color Combination (25 points): Keep this in mind and plant flowers which will go well together in your home arrangements. If you grow yellow roses, orange snapdragons will enrich the colors of both. A container of contrasting color will make the whole picture more striking.



Originality (20 points): Do the unusual! For instance, this piece of driftwood makes a perfect foundation for Day Lilies. Canna leaves are easily twisted to follow the beautiful lines of the driftwood.



CHICKENS ARE EASY TO RAISE



A small poultry house, 24 hens, some feed and kitchen scraps, plus a few minutes of your time will give you 12 to 18 eggs daily.

TWO DOZEN HENS = DOZEN EGGS DAILY

"WE USED to spend as much time driving out into the country for fresh eggs as it takes us now to produce our own."

That's how one enthusiastic family feels about their laying hens.

What does it take? First, a hen house, which you can get ready-made, buy and assemble, or build yourself.

Then, get chicks of a laying breed like leghorns—or one of the new high-laying hybrids which go well in the stew pot when they no longer lay

well. You can brood your own, using the top deck of a broiler battery, or buy young pullets just ready to lay.

Feed laying mash and give them plenty of water, and you're in the egg business.

Two dozen should lay 12 to 18 eggs daily. Your neighbors will usually be glad to get nest-fresh eggs if you have extras. Write your Experiment Station for a bulletin on poultry raising—for technical information, disease control, feeding practices, etc.



Three dozen chicks in a broiler battery, plus 10 minutes a day of your time, gives you 16 broilers to eat and 16 to sell every 4 weeks.

10 MINUTES A DAY = BROILER A DAY

TEN MINUTES a day from any member of the family will provide all the frying chickens the family can eat.

Here's how: For \$40 you can buy a three-deck broiler battery. It's 4 x 3 x 4½ ft. and will fit in a garage, shed, or your basement.

Buy 3 doz. cockerel chicks, of good heavy meat breed like White Rock, New Hampshire, R.I. Red. Put the tiny chicks in the top deck, which has a brooder unit to keep chicks warm.

Feed broiler mash. When they are

4 weeks old, put half of the growing chicks in the middle deck, half down below—and start another 3 doz. baby chicks.

At the end of another 4 weeks, you should have 32 broilers, weighing 2 to 2½ lb., ready to be dressed. Freeze half for family use; sell the other 16, which should more than cover cost of your feed.

If all goes well, you can do this the year around and have chicken every other day, if you want it.



PRODUCE YOUR OWN MILK

YOUR DAIRY bill runs about 25% of your food budget. That's reason enough for many folks to want to produce their own milk, butter, cream, and cheese.

On the other hand, remember, it's not all savings—and when you have livestock you're "tied down." Whether or not you should try to produce your own—settle that with the family. (The one who has to do the milking should get to vote twice.)

Here's a little help for deciding whether it should be a cow or a dairy goat:

DAIRY GOAT

Cost: Good goat will cost \$40 to \$50.

Pasture: $\frac{1}{5}$ acre for 7-month pasture season. Seven or eight goats can be pastured on area needed by one dairy cow.

Feed: Goats will eat about 600 lb. of hay annually, about 400 lb. of concentrates.

Housing: A small lean-to or shed will do. You need 20 to 30 sq. ft. per doe.

Production: A good doe will give 2 to 4 qt. daily. Top does give 6 to 8 qt. when first fresh.

Milk: Goat's milk is already homogenized and widely used in special diets.

It sells as high as 50 to 60¢ a qt.

Taste: Experts say you can't tell the difference in taste, but many people are prejudiced.

DAIRY COWS

Cost: A good cow costs \$150 to \$350. She should be TB- and Bangs'-free.

Pasture: She'll need 1 to 2 acres of pasture.

Feed: Cow will eat $2\frac{1}{2}$ tons of hay a year, plus 1,000 to 2,000 lb. of grain.

Housing: You need a small barn—at least 100 sq. ft. per cow.

Production: Average cow gives 2,500 qt. a year—7 qt. a day. Good cows will give double that, or $3\frac{1}{2}$ gal. daily.

Milk: Cow's milk has advantage of being what folks are accustomed to. Has about the same fat content as goat's milk.

Warning

IF YOU produce your own milk, it will be safer if you pasteurize it. You can buy a home pasteurizer. Or heat it in a double boiler to 165° F., then cool quickly.

200 LB. OF MEAT FROM TWO RABBITS

FIVE FEMALE rabbits will produce as much delicious meat as a big beef steer, say families who've found rabbits delicious and raising them fun. The offspring of two does will add up to 200 lb. of meat. Not to mention what a big prop they put under the food budget!

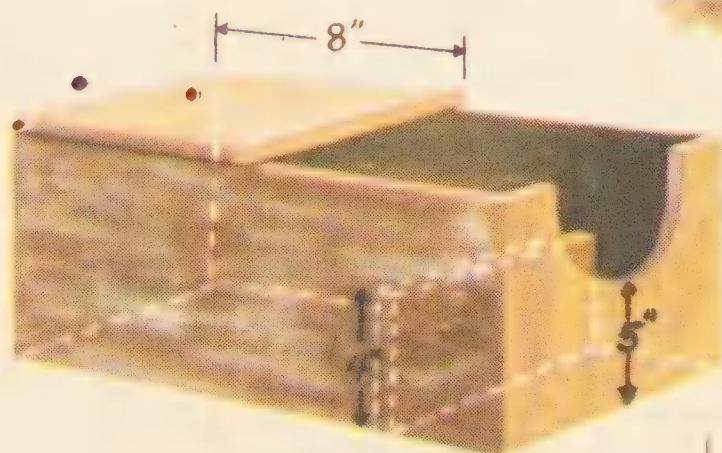
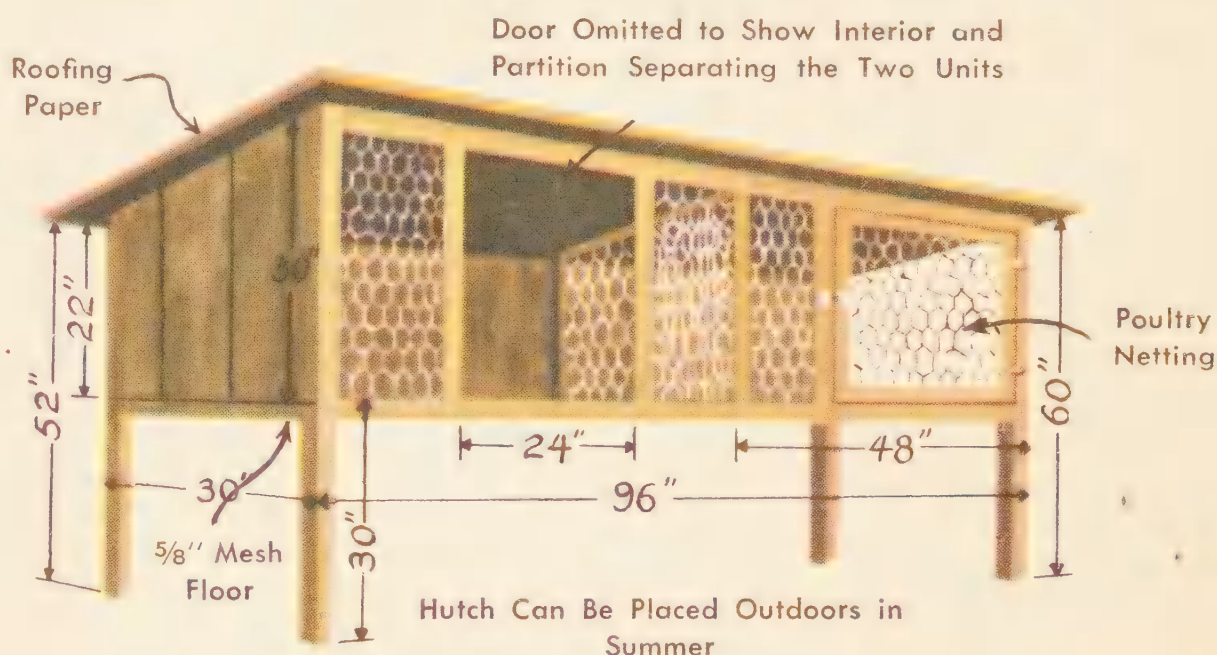
Rabbits are easy to raise—it's usually something kids can and will do eagerly. Equipment is simple. All you need is a hutch like the one below, which can be built mostly of

scrap lumber. A doe sells for \$5 to \$10, and should produce 6 to 10 young—three times a year.

Young rabbits reach fryer age, 4 to 4½ lb., in 6 weeks to 2 months. A good doe of fast-growing breeds like New Zealand or Flemish Giant will, with proper care and feed, produce 130 lb. of meat a year.

It only takes 10 minutes daily to care for a couple of does and a buck. And the meat is mild-flavored—different from the gamey wild rabbit.

HOW TO MAKE A HUTCH FOR TWO RABBITS



Removable Nest Box for Each Hutch

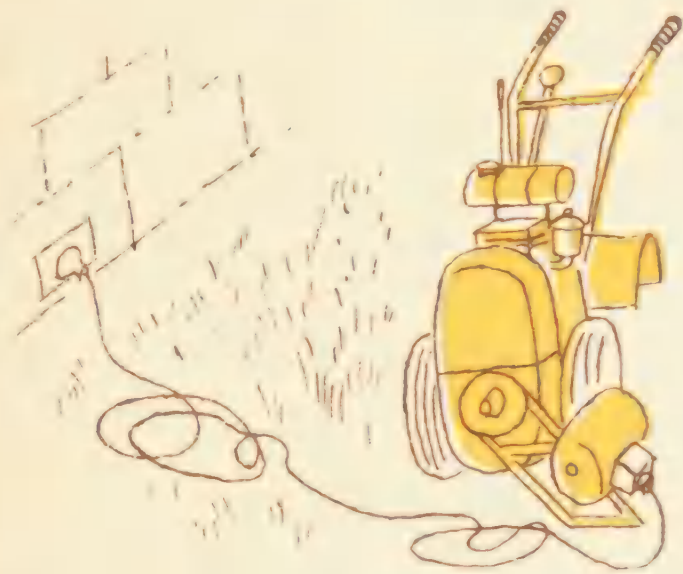


Heavy Crockery Dishes for Water and Feed

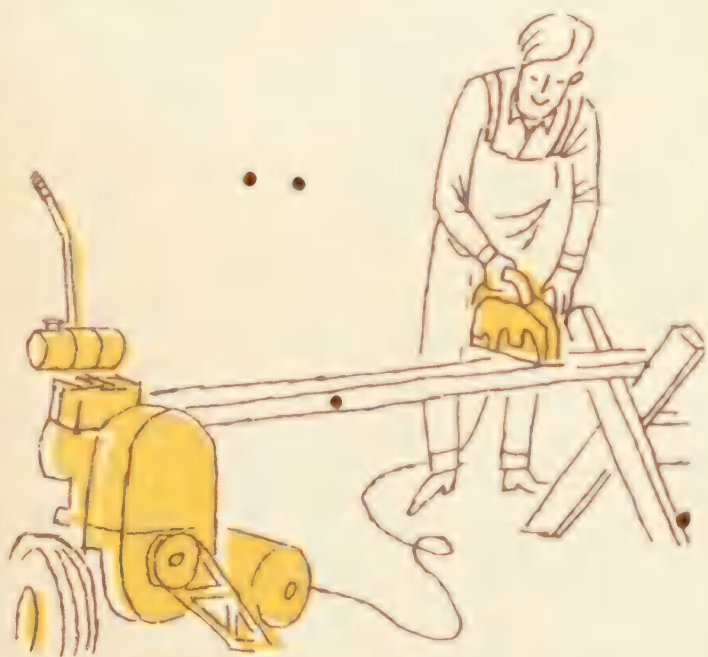
NEW JOBS FOR GARDEN TRACTORS

ATTACHMENTS for the garden tractor are coming fast and furious. So when buying one of these motor midgets be sure you get one flexible enough to do the many jobs around your place.

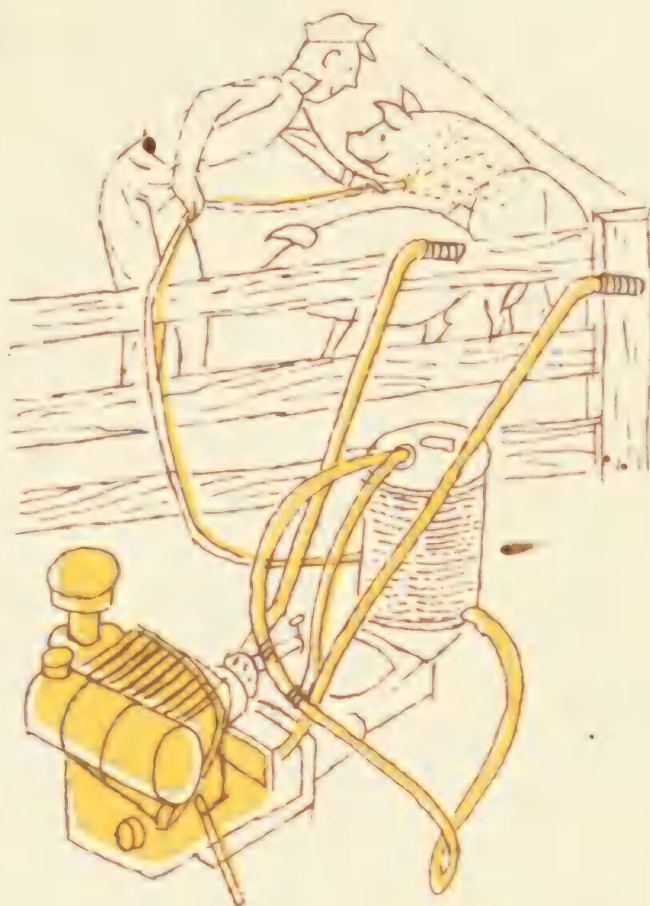
Here are just a few of the new things these mechanical marvels take in stride:



Generating Electricity: A tractor will run a small electric generator during power failure. That means enough current to run your water pump, furnace, and house lights—or your deep freeze.



Powering Small Tools: With the generator, tractor will power most small electric tools, such as: chain saws, hedge trimmers, hair clippers, drills.



“Blowing” Jobs: A tractor will spray paint on barn, delouse your animals, pump up your tires, and spray your garden.



Heavy Work: Tractors clear snow, bulldoze earth, haul 500-lb. loads, buckrake hay.

NEW GARDEN GADGETS

Electric Seeder: Instead of tapping the seed packet with your finger—and having a whole bunch of seeds pour out at once—use this tiny battery-operated seeder that fits in the palm of your hand. As it buzzes, seeds drop out one by one.

Shrub Guard—Yes, against dogs.

Cartridge Tool: New tool drives nails and bolts into concrete and even steel—with blank cartridges. Tool “shoots” the nails or bolts into place.

Shoulder Motor: A tiny over-the-shoulder motor powers chain saws, trimmers, weed cutter, or brush.

Wood Chipper: New machine will grind up brush, or chip waste wood, for mulching or bedding.

EASIER TO FARM

THIS mechanical age has lengthened the life of farmers, says C. L. Folse, Illinois sociologist. Farmers over 65 now make up 14% of all of them—nearly double the figure of 30 years ago. It's *easier* to farm today. And to garden, too.

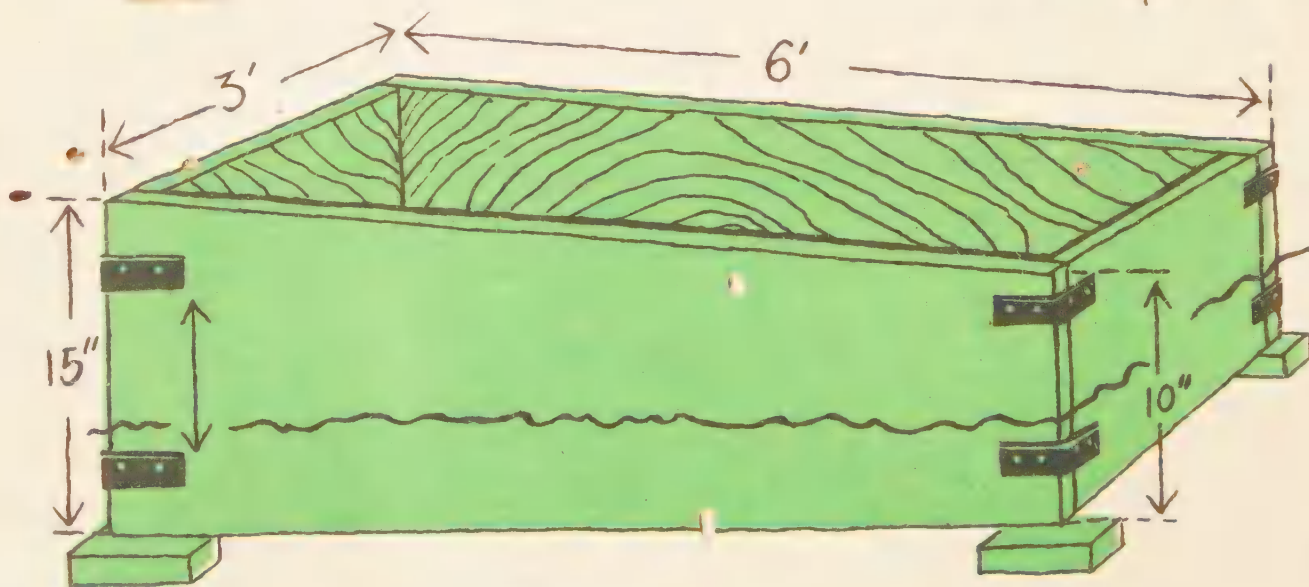
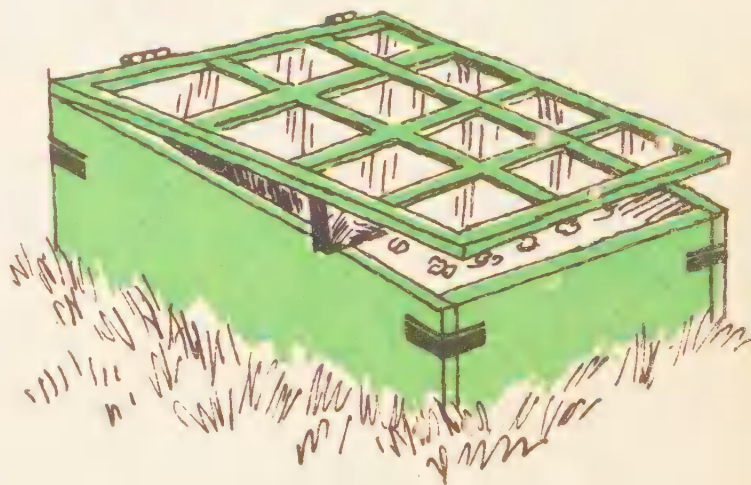
SOIL CEMENT

CEMENT mixed with soil makes a mudproof surface for farm roads—but costs only a third as much as concrete. Soil is pulverized, cement is added in a 1-to-10 mixture, and the road is watered and rolled. After this is cured a week, blacktop is added. In Madison Co., Tenn., 5-year-old soil-cement roads are as good as new. Cost is only a little more than gravel alone.

HOW TO BUILD A SIMPLE COLD FRAME

BUILD a simple cold frame in your spare time, and have radishes, lettuce, and onions weeks before your regular garden stuff.

Use it to start your tomato, melon, or cucumber plants. No artificial heat is needed; not much carpenter skill, either. Make frame fit old storm window or other glass you might have. Slope frame to south. Use lumber 1 in. thick if you want it to last longer.





MONEY-MAKING SIDELINES

LOTS OF folks who are sold on Country Living are *oversold* on farming for profit. On the theory that sunshine and rain are free and seeds cost little, they figure sundown farming is a cinch.

It can and is being done by many. On the following pages are many money-making sidelines which you, too, may find profitable. But first—look the facts in the face.

First, it takes capital. Agriculture has \$20,000 invested per man; industry, only \$8,000.

Livestock? You may wake up some zero morning to find the sows have lost their pigs; or go out on a rainy day and find 6 cows dead of bloat; or discover a skunk has killed half your chickens. And you can't call up the cows on blizzardy mornings and say you're sick and won't be out this morning. Tending livestock is a 365-day job.

Or let's take those crops which Nature grows with free air, free rain, and God-given soil. Sometimes rain doesn't come—and sometimes it floods you. Soil gives only when you give back. And insects and disease germs by the billion are determined to wreck you.

All top-notch farmers make money over the years. And so do top-notch bookkeepers, engineers, doctors, and bricklayers. Farming's no different—it takes skill and experience, plus management. So if you decide to farm for profit, go into it with your eyes open. And anything less than "top-notch" is a risky proposition.

WANT TO BE A SUNDOWN FARMER?

So you want to be a sundown farmer? A million families can't all be wrong? Yes, a million families and more are

making profits out of part-time work in the country—and having fun at it, too.



ADVANTAGES

More Income: There are surely dozens of money-making sidelines open to the part-time farmer. With proper management a small part-time farm with good soil can add \$500 to \$2,000 or even more to your net income.

Profitable Use of Spare Time: The U. S. Dept. of Labor says the average worker spends 125 days off the job—a third of his time. Your leisure time along with that of your family's can earn extra dollars at top wages.

Best for Children: Most parents agree "there's no place like the country to bring up children." Learning to grow things, the responsibility and pride of caring for their own animals, makes well-rounded boys and girls. And 4-H clubs, Future Farmers, and Future Homemakers are tops in giving useful training as well as developing useful citizens.

More Security: Particularly at retirement age, more security is worth having. If you own a house, grow most of your food, and have some cash coming in from your land, then loss of your job can't be disastrous. There are many light work jobs older folks can do which will supplement their retirement income.

A Tonic: Living in the country offers a refreshing change from the city grind. And if "a change of occupation is a vacation," you can have a vacation every day, for there's always work to do in the country.

Growing Your Own Food: You can produce your own eggs, milk, meat, and most of your fruit and vegetables. This isn't all profit, of course, but it will reduce your food budget considerably. Also, nutritionists say we eat more healthful foods when they're plentiful.

OKAY—BUT LOOK BEFORE YOU REAP!

WE DON'T want to throw cold water on your farming plans, but we would urge you to look before you reap! Be

fair with yourself and your family and consider the other side of the farming-for-profit picture.



DISADVANTAGES

Being Tied Down: You can't just pick up and go places. Feeding livestock is a 7-days-a-week job, 365 days a year. You fit your life to the farm. The chicks, cows, and crops call the turn.

Hard Work: Sure, there are a lot of push-button gadgets and mechanized tools. But rain or shine, some things must be done by effort, and they've not yet air-conditioned the outdoors.

Disappointments: "Don't count your chickens before they hatch" is based on stern historical farm fact. Drouth may cut your yields, disease hit your livestock. We could list 101 risks a farmer takes.

High Costs: Land near cities is higher-priced. Out-of-pocket cash ex-

penses for seed, fertilizer, and equipment are at an all-time high—and increase your risk.

You're an Amateur: You wouldn't expect to start practicing law, turning out machine tools, or teaching school overnight—yet many think they can farm without experience or training. It takes real skill—and many things you're going to learn only by bitter experience. For a farmer, at various times, must be a chemist, economist, entomologist, veterinarian, diplomat, agronomist, mechanic, and farm-management specialist.

Your Regular Job Can't Be Changed So Easily: Always you have your farm investment to think of; the tail may wag the dog.

RAISING POULTRY FOR PROFIT



Selling Direct

TWO THINGS prompt many poultry-flock owners to sell direct to the consumers:

1. So many folks have been stung on bad eggs bought in stores that they'll go out of their way to buy "country-fresh" eggs.
2. The margin in selling the eggs direct is almost as much as in producing them.

Frank Scott, Warren Co., Iowa, took a dozen eggs to a friend in Des Moines one day—and so many others wanted to buy eggs that it grew into a regular route. Mrs. Scott now delivers 125 doz. eggs twice weekly to regular customers—at a margin of 20¢ over what they'd get from a dealer.

Other poultrymen prefer to bring the customers to their farms—where they sell eggs, dressed chickens, and other farm produce.

"Half of the birds sold at retail will make more profit for you than twice the number sold at wholesale—and that means you can greatly cut your investment and financial risk," says G. T. Klein.

Or to put it another way: Many growers are finding they can make as much money merchandising a fryer or a turkey as raising it.

Raising Capons

SOME POULTRYMEN find it pays to raise capons. In May of last year, broilers sold for 24.1¢ at Boston;

roasters brought 31.5¢; and capons sold for 46.5¢ a lb. or almost double the price per pound of broilers.

Prof. George D. Quigley, Univ. of Maryland, says a 7½-lb. capon can be grown for as little as 4½ to 5 lb. of feed for a pound of gain. In broilers, it's about 3 lb.

On that basis, a broiler would bring 27.3¢ over feed costs in 10 weeks. And the capon makes \$1.70 over feed costs in 18 to 20 weeks.

Two Indiana boys, Peter Magurean and Tim Cole, Porter Co., added \$750 to their profits on 5,000 roosters by using hormone capettes to "caponize" the roosters. Small pellets costing ¾¢ per rooster were injected in the head. They have the same effect as caponizing. Roosters gain faster, grow fat; flesh becomes more tender and succulent. Effect of pellet lasts 5 or 6 weeks.

Facts to Remember

If you're trying to make money on poultry, remember:

1. You should produce a 3-lb. broiler on 9 to 10 lb. of feed. Top growers do it on 8 lb. per bird.
2. It takes about 25 lb. of feed to raise a 3½ pullet in 6 months. Then it will take about 90 lb. of feed a year, if your hens lay 200 eggs a year.
3. If your hens lay only 150 eggs a year, you'll just break even.
4. Successful poultrymen clear \$2 per hen above feed and other costs. Top poultrymen clear \$3 or \$4. And, we might add, a great many poultrymen lose money.
5. Have you visions of going into poultry full time? Get your feet wet first on a smaller number. It will take an investment of \$22,500 to start a 2,000-hen laying flock, estimates the California Experiment Station. They figure a well-run poultry farm will produce \$4,000 net. And they also say the operator will work a 58-hour week—with no vacations.

\$300 A YEAR FROM A 40-ACRE WOODLOT

FARM WOODLOT owners could increase their income by a whopping \$2 billion annually with common-sense management, says Richard McArdle, Chief of U.S. Forest Service. If you're the owner of a 40-acre run-down woodlot, you may be losing \$300 a year.

Of the 4 million farm woodlots, only 4% are being run well; only 17%, even fairly well, he says. These contain a half of all timber in the U.S. Four-fifths of the lots are under 100 acres.

Thousands of these farm woodlots can be turned into steady income producers, furnishing fuel, posts, and lumber for your farm—plus wood products for cash sale—plus spare time winter work paying \$2 to \$2.50 an hour.

Two to four hours per acre invested in Michigan woodlots during the winter returned \$2.75 to \$9.50, says Lester E. Bell.

Harold Pinkenbinder, Jo Daviess Co., Ill., says, "Most farmers who turn their cows into a woodlot pasture get 50 cents worth of pasture and no timber." Over the years, his managed woodlot has returned \$11.70 per acre per year.

A forester told Glenn Hickam, Randolph Co., Ill., that his trees were ripe and should be harvested—same as any other ripe crop. He took \$1,300 worth of timber off a 43-acre patch of woods. "And what's more, I can make \$2.50 an hour working in the woods in winter," says Glenn.

A Louisiana farmer was offered \$500 for all of the timber on his farm. He thought this was a fair price, but after talking with a forester he turned down the offer. Instead, he cut the ripe trees and the "weed" trees. This timber alone sold for \$1,700. And his forest will be ripe for another such cutting in 5 years.

Timber is like money in the bank; it's there when you want it. But if you take only the interest, the principal remains and produces income over the years.

So if you have a woodlot, see your local forester or county agent. He will show you what trees to harvest, which ones to cut out because they're "weed trees," "wolves," poor species, or overcrowded. See the USDA illustration below on what to cut—and not cut—in a woodlot.



ROADSIDE SIGN IS A MUST



Quick-change sign can be easily changed in 5 minutes.



Whet-appetite sign talks about crops before they're ripe.



Novelty sign attracts attention.

AN ATTRACTIVE roadside sign is necessary if you have a farm surplus to sell to the public. It will do for you what advertising does for business, ballyhoo for the circus, and make-up for a woman.

It attracts favorable attention. And the more effective it is, the more you will sell.

If you're on or near a well-traveled road, the proper farm sign can sell your surplus milk, breeding stock, poultry, eggs, vegetables, fruit, rabbits, strawberries, or watermelons.

Here are some things a farm sign should be:

- Big enough to be read as motorists whiz by.
- Placed so it gives the can't-make-up-his-mind driver time to debate mentally with himself for 10 seconds before he comes to the stopping or turning-off place.
- As neat, distinctive, personalized as possible.

A rural sign service in Wisconsin will make up a sign to fit your business. Or you can build your own and get a sign-painter to letter it. Some farmers even rent regular billboards.

Gilbert S. Watts, Pennsylvania farmer experienced in selling direct, has two good sign ideas to pass along to others:

1. He uses two 1-in. pipes as stakes—on which he can bolt any one of half a dozen signs he has. The sheet-metal signs fasten on with cotter pins or stove bolts, so he can make a quick change. He can take down STRAWBERRIES and put up NEW PEAS in the time it takes to unscrew and screw four nuts. Also, if he runs out of produce he can take the sign off.

2. Another idea that Watts has used with much success is to personalize signs that tantalize the customer. In April, passers-by read: IT'S PLANTING TIME. WE'RE BUSY AS BIRDS. In May, OUR STRAWBERRIES WILL SOON BE RIPE! He whets the public's appetite in advance.

FARM STANDS "SELL SIZZLE"

TODAY, the farmer gets only 43¢ out of every dollar spent for food. The big share goes to off-the-farm processors and distributors.

To get more of the profit from the stuff you raise, sell it direct to the consumer. The roadside stand is a natural outlet for many.

The saying "To sell the steak, you must sell the sizzle" applies to farmers, believes Gilbert S. Watts (see page 152).

The "sizzle" in this case he lists as freshness, seasonableness, unusual abundance, interesting price, wonderful quality, or any other attraction your raised-in-the-country produce might have.

"Vegetables are everywhere. Freshness is in some places," says he, sagely.

ROADSIDE STAND TIPS

THESE SUGGESTIONS on successful roadside stands are offered by A. W. Van Dyke, Univ. of Connecticut:

Approach: Stands should be visible from a distance.

Sign: Should have forerunner sign down the road, to alert potential customers.

Location: Put stand on well-traveled road. Avoid hills and curves.

Parking: Cars parked at your stand will attract other customers as flowers attract bees. Have plenty of space.

Production: Plant crops so they will ripen successively through the season.

Appearance: Keep empty boxes and rubbish stacked out of sight.

Shade and landscaping: These give appearance of cleanliness and quality, make customers want to come back.

QUALITY OR BARGAIN?

ROADSIDE-STAND operators report that most customers stop because they want either country-fresh quality or bargains. You can satisfy both:



Top-quality fruit sells best in small baskets. • •



Cheaper fruit will sell better in larger baskets.



Massive displays attract attention.

17 WAYS TO MAKE MONEY



Pheasants: Each year, Jack Groetizinger raises 7,500 Mongolian-Ringneck pheasants on his 7 acres of mountain land high in the Santa Cruz Mountains of California. Hens finish out at $2\frac{3}{4}$ lb., cocks at about $3\frac{3}{4}$ lb. A pair sell for about \$6.50. (We bet many a hunter goes home with two pheasants, minus \$6.50, and a triumphant smile on his face as he hands the game over to his wife.)

Egg-o-Mat: One of the most revolutionary methods of selling eggs is the new Egg-o-Mat or Egg-o-Teria, an automatic egg-vending machine. Some roadside poultry farms use them to save labor. Customer can place coins in slot, get different sizes of fresh eggs by the dozen from refrigerated storage.



Dairy Goats: The most modern goat dairy in the country is run by the Albert Bommer's, Valley Park, Mo. They have a goat-milking parlor, with pipeline milkers. In an hour a day, they can clean, feed, and milk 20 goats and bottle the milk. His herd averages $2\frac{1}{2}$ to 3 qt. of milk each daily; his top producer has made 3,000 lb. of milk and 151 lb. of fat a year—60% of what the average U.S. cow produces. The goat milk is sold on the St. Louis market for 50¢ a qt.

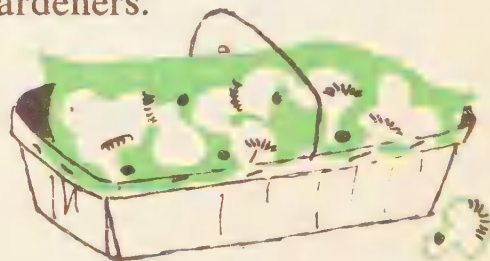
Chinchillas: The first chinchilla pelt went on the market this past year. Since this furry animal was introduced from South America, chinchilla raising has been in the hands of breeders. The only market consisted of someone else interested in raising chinchillas—a sort of chain-letter sales proposition—and breeders who got in on the ground floor made excellent profits. But this year chinchillas have been pelted for the first time. Now comes the real chinchilla test.



Herbs: Mrs. Carl Collin, Scotch Ridge Farm, Kalamazoo, Mich., started out raising herbs for kitchen use and as a hobby. But now it's blossomed into a full-time job for her—with help from her husband. She grows, dries, and sells a variety of herbs for cooking and makes herb vinegars too.

Muskmelons: 20 acres of them have become the biggest money-maker on the dairy farm of Allen F. Hand, Greenwich, N.Y. And M. W. Artburn, Mattoon, Ill., says his melons give him three times the profit that corn does.

Fishing Worms: Some raise them for fish bait, some to improve the soil. And some even make money selling fishworm castings to organic-conscious gardeners.



Mushrooms: Feeding mushrooms Vitamin B concentrate has increased mushroom yields as high as 56%, according to Dr. I. C. Hoffman, Ohio State horticulturist.

WHILE LIVING IN THE COUNTRY



Rainbow Trout: One million rainbow trout are grown out yearly by Donald D. Dauwalder, Los Angeles, Calif. He feeds them beef liver, sardines, and anchovies. At six months they're big enough to sell, weighing 3 to 4 lb. each. They convert 3.2 lb. of feed into 1 lb. of fish. Feed costs 8 cents a lb.; total costs are 60¢. Fish sell for 90¢ to \$1 a lb.

Sheep: Clifford Fourman, Drake Co., Ohio, made \$1,200 net from 20 acres of bluegrass, 20 ewes, and a little spare time. He sells as many as 75 lambs per ewe, and gets a 10-lb. wool clip from each also. He only has to buy about 10 tons of alfalfa hay and some grain. This adds up to \$60 an acre net.

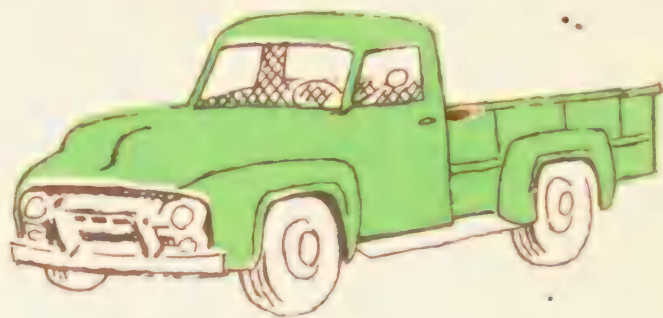


Quail: Randolph Hayden, Haddam, Conn., raises and markets 3,000 quail each year. He has a ready market for the delicious game bird among New York City gourmets.

Cider: Last year Edmund Vallera, Haddam, Conn., sold 2,000 gal. of cider. He squeezes 3 to 4 gal. from a bushel—thus upgrading many of his poorer grade of apples to a good price.

Fancy Tomatoes: Don Shattuck, San Diego Co., Calif., raises fancy tomatoes with hydroponic farming. Large concrete beds in greenhouses are filled with pea gravel and liquid plant food. The perfect, blemishless tomatoes bring 59¢ a lb.

Sweet Corn: New hybrids yield well and give good quality—the kind that will sell best at a roadside stand. Pick corn as close to time of sale as possible, then pre-cool at once with ice or cold water. Sweet corn can lose 40% of its sugar in a single warm day. Lowering the temperature 18° F. saved half of this sugar in tests. Fresh corn outsold day-old corn 16 to 1 in the market.



Custom Work: If you have extra time to work with your tools, you can usually rent them out for a fair profit—anything from chain saw to tractor.

Strawberries: They pay off at the rate of \$2,000 to \$4,000 an acre. Out-of-season berries pay best, so check the new everbearing varieties (see page 197). Profit margin is good. Some folks let people pick their own.



Christmas Trees: On land too poor and too eroded to grow regular crops, plant Christmas trees—and in 7 years they'll begin bringing you an annual harvest. A Michigan grower reports an 80¢ profit per tree. A West Virginia grower gets \$3.50 to \$5 per tree retail. Many growers hope to net \$100 per acre per year for 10 years.



30 PONIES AND 4 SMALL BOYS

THIRTY PONIES and four small boys add up to a lot of fun—and some profit too, says Ken Gritts, Sheboygan Co., Wis. Scads of fun for the boys, you can be sure. And a neat profit from pony sales for the 20-acre farm.

On Sundays the farm looks like an amusement park as many families drive by with their children to “see the ponies.” And more folks come back to buy than there are ponies to sell.

Ponies require little care and no more feed than a sheep, says Ken.

Many pony raisers sell their tiny steeds for \$300 and \$400 up. With water in the pasture, the family isn’t “tied down.” Only one problem: As the boys grow older, they’re claiming the ponies. “Silver Lady is mine,” says Ronnie. Which sort of puts up the NO SALE sign!

“We wouldn’t recommend raising ponies as a full-time job,” says Mrs. Gritts. “But it’s an ideal set-up if you have a few acres, children who want something to love, care for, and play with, and a job that brings home the bacon.”

100 HIVES OF BEES ARE PROFITABLE SIDELINE



A SIGN with a grinning bear points to LAWLER’S HONEY—PURE COMB AND JAR, and beckons busy motorists to a spotless concrete-block salesroom. There customers buy all the honey from a hundred hives of bees, which provide a profitable and pleasant sideline for John and Eleanor Lawler, Chester Co., Pa.

As a boy, John caught his first swarm of bees in a tree. He bought a used hive and with advice from a beekeeping friend, books on bees,

and a few stings, he learned beekeeping. Now he raises his own queens to staff the 100 thrones, and he and Eleanor extract and package all of the honey.

The first wild flowers in the spring start a busy year for the bees. Then come the Tulip-trees and a heavy flow of dark honey in May. Summer brings clover fields. Bees seek out wild flowers and Spanish needle along the Delaware River in late summer—and later still, goldenrod and asters.

Tail Wags Dog

THE TAIL wags the dog in seed and orchard areas where bees rent for \$7.50 to \$10 an acre for pollination purposes. And the farmer doesn’t even get any of the honey.

FARM PONDS FOR FUN AND PROFIT

FARM PONDS are paying their way on hundreds of thousands of farms—and all the fun they give in fishing, swimming, and skating is an extra dividend.

Here are some of the ways farm ponds pay off in cash:



Frogs: In warm areas like the South, frogs grow fast. A 2-year-old will weigh up to a pound. Warren Brown, who raises frogs in southern Illinois, feeds them during the summer by putting out kerosene flares to attract insects. The bullfrogs do the rest.

In Sun Valley, Calif., Marie Doizaki raises frogs in eight 10- by 30-ft. pools. She feeds them crawfish. A big frog will weigh 2 lb. and sells for \$2.25 a lb. dressed.



Fish for Profit: An Alabama farmer made \$7,500 selling fishing permits on his 40-acre lake. You can raise 200 lb. of fish annually from an acre of pond. By fertilizing in the warmer climates, you can raise 300 lb. of fish. Bluegill and bass are a favorite combination. It takes 3 years to grow a 1-lb. pound bass in Michigan, only 1 year in Alabama. That's probably why there are more than half a million farm ponds stocked with fish in the South alone.



Irrigation: If you raise sweet corn, tomatoes, strawberries, or other high-value crops for sale, irrigation will insure you top yields and top quality. Farm ponds are a good source of water. An Illinois farmer tripled his profit from strawberries with water from a "sky pond," made by catching drainage water from 10 crop acres.



Raise Minnows: Some pond owners raise minnows for fishermen. They produce 50,000 to 200,000 annually from an acre of water. At 3¢ each, that's \$1,500 to \$6,000. And some sell 'em for 5¢.

To Clear Green Scum

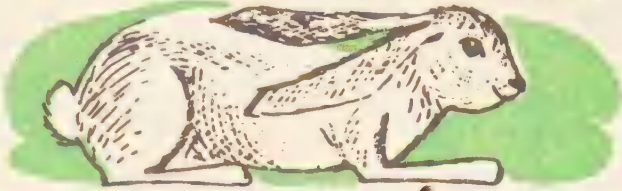
To clear farm pond of green-growing algae, Cornell Univ. suggests 1 part per million of copper sulfate. Or, 27 to 40 lb. per acre foot. Missouri scientists have had good luck cleaning up muddy water with 12 lb. of gypsum per 1,000 cu. ft. of water.

Fertilize Fish Ponds

Fish yields from fertilized ponds ranged from 193 to 721 lb. in an Illinois study. From unfertilized ponds, yields were 196 to 379 lb.

It's a common practice to fertilize ponds in the South—as high as 800 to 1,300 lb. of 8-8-4 per acre.

RABBIT FARMING IS BIG BUSINESS



MORE THAN 135,000 rabbit raisers last year sold 60 million lb. of meat, worth \$25 million at wholesale prices. That does not include pelts sold for linings, trimmings, and toys.

Rabbit raising can be a real money-making sideline. It's about as easy to care for eight does as two. Eight can give you 800 lb. of meat to sell, plus fryers for your freezer.

How Many? It takes one buck to 8 or 10 does. A doe will "kindle" three or four times a year—and have 6 to 10 in each litter. These young will grow to 4 or 4½ lb. at 6 to 8 weeks.

Feed: Dr. Ralph Bogart, Oregon State College, estimates a doe will eat 130 lb. of feed per year. (This includes ⅛ share of buck's feed.) The young rabbits will eat 3.5 lb. of feed per pound of live young marketed.

Profit: Bogart estimates a good doe should bring in about \$10 a year over feed costs. That's pay for your time.

Breeds: Two favorites are New Zealand White, New Zealand Red, and Flemish Giant. Full-grown New Zealand will weigh as much as 12 lb., and

will raise 8 young to 4½ lb. at 8 weeks. Flemish Giant will grow to 7 lb. at 3 months, 14 lb. at a year.

Rule of Thumb on Space: 1 sq. ft. per pound of doe; so, 10 to 12 sq. ft. for New Zealand.

Feeding: You can feed rabbits on hay and oats alone, but good commercial rabbit feed will make more meat.

RABBIT PROFITS

Los Angeles county rabbit raisers grossed \$6,350,000 last year. Average investment per doe was \$22.38—of which \$14.93 was invested in equipment and land. Growers averaged 76¢ per doe per month above cash costs. Some received as low as 46¢; some as high as \$1.88. Growers averaged 9½ hours a year per doe, some as low as 6 hours. In a well managed rabbitry a man and wife can raise 600 to 1,000 does.

Six growers sold 50.1 lb. of fryers per doe in a 6-month period, for an average of 30.3¢ per lb. or an average return of \$15.18 per doe for 6 months. Each doe and her litters or replacement consumed 259 lb. of feed, which cost \$4.53 per 100 lb. That left \$3.46 as return above feed costs for each doe for 6 months.

FIGURE YOUR FEED COST PER POUND OF MEAT

(Source: Oregon State College)

Feed Cost per 100 Lb.	Production per Doe per Year				
	40 Lb.	60 Lb.	80 Lb.	100 Lb.	120 Lb.
\$5.00	36.5¢	30.0¢	27.0¢	25.0¢	24.0¢
4.00	29.2	24.0	21.6	20.0	19.2
3.00	21.9	18.0	16.2	15.0	14.4
2.00	14.6	12.0	10.8	10.0	9.6
1.00	7.3	6.0	5.4	5.0	4.8

As you can see from this table, if feed is \$5 a hundred, and live rabbits sell for 27¢ a lb., you must produce

80 lb. of rabbit per doe per year to pay feed costs. Anything less than that means a loss.

\$158.73 FROM 70 TOMATO PLANTS

WE MADE \$158.73 off the 70 tomato plants we planted in our garden last year. (The "we" is Terry, 11; Karen, 10; Bob, 8; and Cheryl, 6. Our last name is Strohm.)

It all started 4 years ago, when we came home from Grandma's and found lots of ripe tomatoes in our garden. Mommy said if we would pick and wash them we could keep the money we got if we sold them. We (Terry and Karen) put them in our wagon with a baby scale. We went from house to house in Woodstock asking if anyone wanted to buy tomatoes at 5¢ a lb. We let people pick out what they wanted and put them on the scales. We sold all of them in 3 days and made \$4.80.

The next year we decided growing tomatoes was an easy way to make money, so we planted about 20 plants. We also got some extra plants, but when they started to ripen we saw they had little yellow tomatoes on them. They were no good for selling. That year we made \$16.

Two years ago Bob, 6, and Cheryl, 4, joined the business and became Chief Greeter and Assistant Greeter, respectively. Cheryl greeted people who came to the house for tomatoes. That year we decided that we bothered too many people going from house to house (Mother really thought of this), so we put this ad in the Woodstock paper: "Home-grown slicing tomatoes. Call 1305. Terry, Karen, Bob, Cheryl Strohm."

We had lots of calls, and also some trouble. Terry and Karen had baskets on their bike handlebars for delivery. But we had some complaints that the bumps bruised the tomatoes, so we gave these customers extra tomatoes. Now we hold them in our arms on short runs—or carry them in saddlebags. This sort of cushions them. No one wants squishy tomatoes. We made \$73.40 that year.

Last year was our best. Our record book shows we got \$158.36. We used

some early hybrid seed, started plants in the house, then real early we set them in a 20- x 50-ft. patch. Mr. Roark, our neighbor across the fence, called it "our winter garden." It got real cold one day, so we hurried and bought hot caps and put on the plants, and turned buckets over our bigger plants.

We mulched the garden—some plants with straw, some with aluminum foil. Each one of us had about 16 plants to weed and watch.



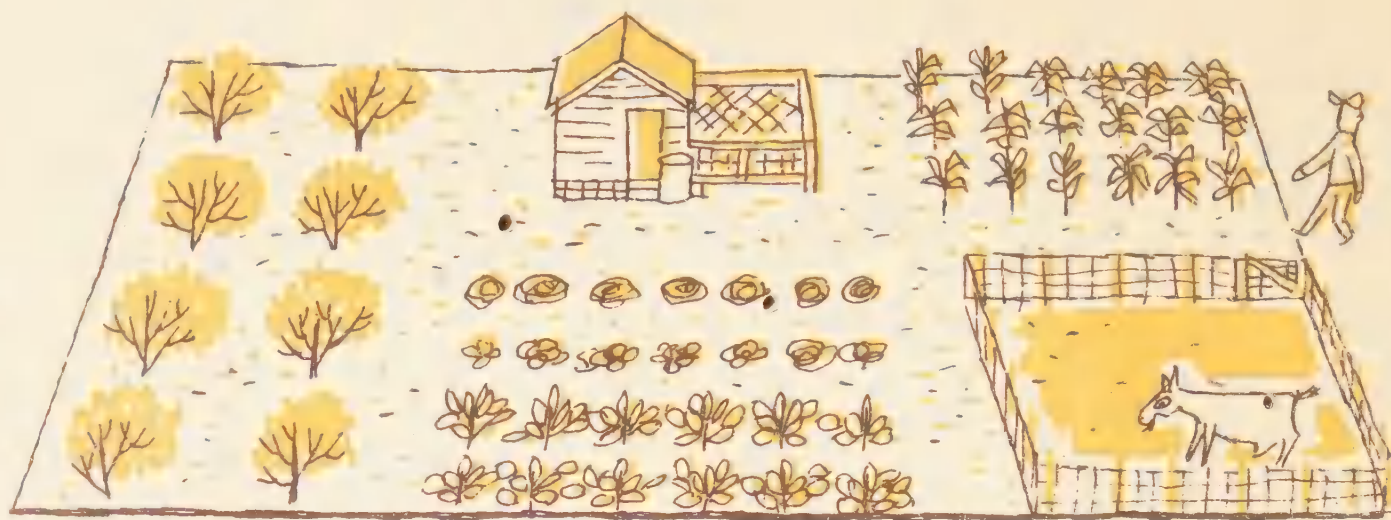
When they started blooming, we borrowed a perfume atomizer from Mommy and squirted hormones on the yellow blossoms. This makes them hang on and gives earlier tomatoes. We also dusted the plants every week with all-purpose dust.

The early ones pay best. We got 25¢ a lb. when ours started getting ripe July 10. "Quarters sure count up faster than dimes," said Bob, our treasurer. We put in the paper classified ads, which cost 72¢ each, and we also wrote cards to people saying, "Our tomatoes are ripe again."

Now we have people asking us, "If you're going to have those nice tomatoes again, we won't bother planting our own."

We also sell to a restaurant and two neighborhood grocers.

We keep books on our tomato business. Bob puts down all expenses, such as plants, fertilizer, hormones, sprays, and all income from sales. We passed a resolution in Tomato Council that Dad should buy the fertilizer because we also furnish lots of tomatoes to eat at home. He said Okay. This year we hope to set a new record.



12

SECTION

BIG RETURNS FROM LITTLE ACRES

FARMS are getting bigger. The number of farms is getting smaller.

Reason? Modern farm machinery makes it possible for you to handle twice as much acreage as during the one-row horse-drawn cultivator days.

Also, farm management records show volume of production is one of the biggest factors in net profits. *But farms do not have to be big to give the operator a substantial profit!* Here are some examples of how to make a lot on a little land.

\$43,280 Gross from Half-acre Farm

FIVE THOUSAND laying hens on less than a "half-acre farm"—that's what Charlie Muirhead has out in Santa Rosa, Calif.

He broods chicks on dry litter, then raises his pullets in cages, five to a cage, since he has no room for poultry range.

He keeps his layers in double-deck cages, where he can spot instantly how each hen is laying. As long as they lay 5 eggs a week, he keeps them. When they fall down, off they go to a stew pot, and in goes another layer.

But 5 eggs a week adds up to 260 eggs a year per hen. That's top production, and it insures good profits. Figure it: 260 eggs at 50¢ a doz. is \$10.82 per hen. Multiply that by 4,000 and you have a gross of \$43,280 a year from a "half-acre" farm.

\$15,000 Gross from His Backyard Flock

HERMAN PETROWSKE, Chester, Ill., gets eggs from 1,500 backyard hens—without enough land for a poultry range. He grosses \$12,000 to \$15,000 a year. He raises his pullets indoors, buys commercial feed, feeds corn, wheat, and oats in the litter at night as scratch feed. He sells eggs in town at 10¢-a-doz. premium—they're fresh.

82 Acres: Enough for Two Families

By heavy fertilization and livestock farming, Ed Lauffenburger and son Carl keep two families on 82 acres.

Their 22 cows made more than 244,000 lb. of milk last year; oat yields go to 100 bu. an acre; corn makes 90. They also feed hogs and keep layers on their Cook Co., Ill., farm.

5 WAYS TO MAKE YOUR FARM BIGGER

"WHERE can I get more land?" is a common complaint of small farmers.

"Where can I get even a small farm?" complain young farmers just starting out—but with no farm in sight.

Answer: Stretch your acres. Most farms can add the equivalent of 40 to 80 acres without buying or renting. Many farms could support another family if they'd use one or more of these acre-stretching methods:

1. Produce more with fertilizer. Reseeding and top-dressing the average pasture with fertilizer will double the number of cows it will carry. Thus if you have 40 acres of average pasture, fertilizer can make it produce about as much as 80 acres of average pasture.

Fertilize corn to the hilt and you can probably crib 100 bu. of corn per acre instead of the 50 or 60 you're now raising. And why go to the trouble and expense of farming 100 acres of corn if you can get the same yield from 50 or 60?

A 25% boost in production from most of our crop land is possible with fertilizer. Such a boost can *double* your net profits. You really cannot afford to buy more land or rent more land, unless you're already farming your present land to capacity.

2. Add an intensive crop. Strawberries will bring in as much as \$1,000 an acre if you're in a good market location.

"Muskmelons make twice as much money for me as corn ever did," says an Illinois farmer.

"Five acres of tomatoes have made me more profit than 25 acres of corn," says a Hoosier.

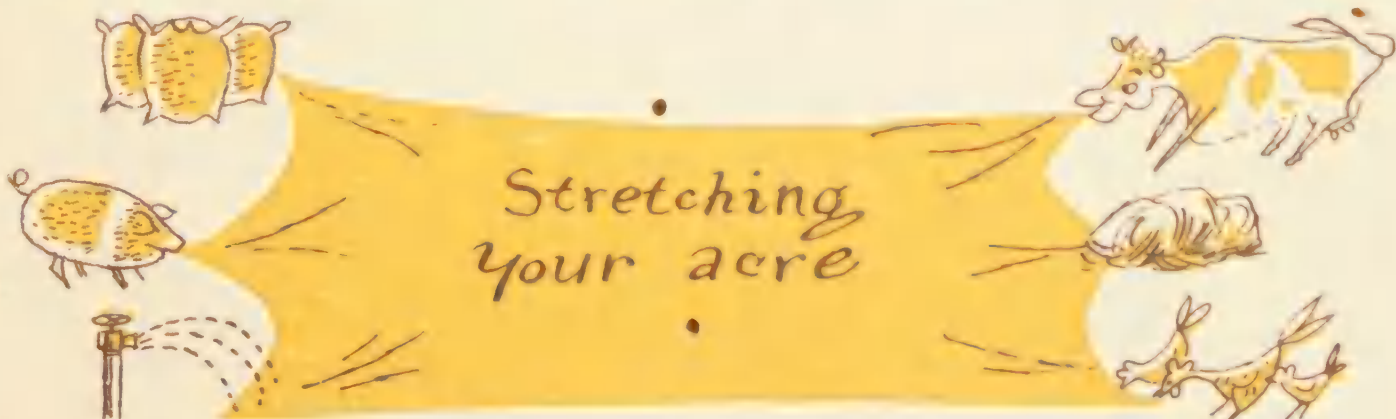
Potatoes, vegetables, orchards, fruit, seed crops—there's a wide range of possibilities for making a small acreage pay big dividends.

3. Put in poultry. "The best way I know of to get the profit from 80 acres of good land without buying or renting is to add 500 laying hens," advises A. P. Loomis, Illinois poultry breeder. He says that on a couple of acres 1,000 hens properly bred, fed, and cared for will yield a farmer as much as an average 160 acres of crop land.

4. Add livestock. At the Ohio Experiment Station, figures show how livestock adds to farm income. A corn - wheat - and - alfalfa rotation returned \$3,805 when crops were sold. When corn was fed to hogs and forage fed to cows, which gave 5,000 lb. of milk, the return was \$4,191. When the corn was fed to hogs and forage fed to cows giving 10,000 lb. of milk, the net return was boosted to \$5,194.

During the last 5 years, corn has sold for an average of \$1.70. But when fed to hogs on a good Iowa farm, corn has "sold" for \$3.72 a bushel.

5. Install sprinkler irrigation. On many farms, irrigation could make a 40-acre pasture do the job of 100 ordinary acres. It could make a 125- to 150-bu. corn crop a sure thing. With a small investment you could double the yield on small acreage of vegetables or fruit.



TRADED 320-ACRE RANCH FOR ONE-ACRE FARM

THIS is the story of a farm couple who left a 320-acre North Dakota grain and livestock ranch for a one-acre farm. And they've made a good living there for the last 18 years.

Leonard and Florence Rasmussen live at Tarzana, Calif., and here's what they do on an acre of land:

They have a laying flock of 200 hens. They sell 100 eggs daily right from the house—also the excess chicken manure. About 300 fryers and broilers are raised and sold dressed. They sell fruit from 35 fruit and citrus trees, and they profit from 50 chinchillas kept for breeding.



3 HOURS DAILY NETS \$4,000

WITH 3 hours of day work, Raymond Leggo nets about \$4,000 a year on broilers. He keeps about 5,500 at a time and raises 4 broods a year. His quality White Rocks are marketed at 11 weeks and often bring him 3¢-a-lb. ~~premium~~.

HER 5-ACRE FARM TEEMS WITH LIFE

FOUR YEARS ago Louise Greenlee was a registered nurse in Chicago who wanted to farm instead. Today, she's boss of a 5-acre farm in California that teems with life and activity—and turns in a neat profit.

She raises 550 Rhode Island Red broilers at a time. She keeps 40 New Zealand and Californian does, which produce several hundred fryer rabbits each year.

BROILERS MAKE HIS FARM BIGGER

HIS FARM was small. He had a big family. How to increase his profits? That was the problem of Robert Jamieson, Kenosha Co., Wis. So he decided on broilers for extra dollars.

He has a capacity of 6,000 broilers at one time. One batch of 5,600 birds once cleared \$1,448 above costs for chicks, feed, medication, heat, light, and litter. That's for about 3 months of part-time work.

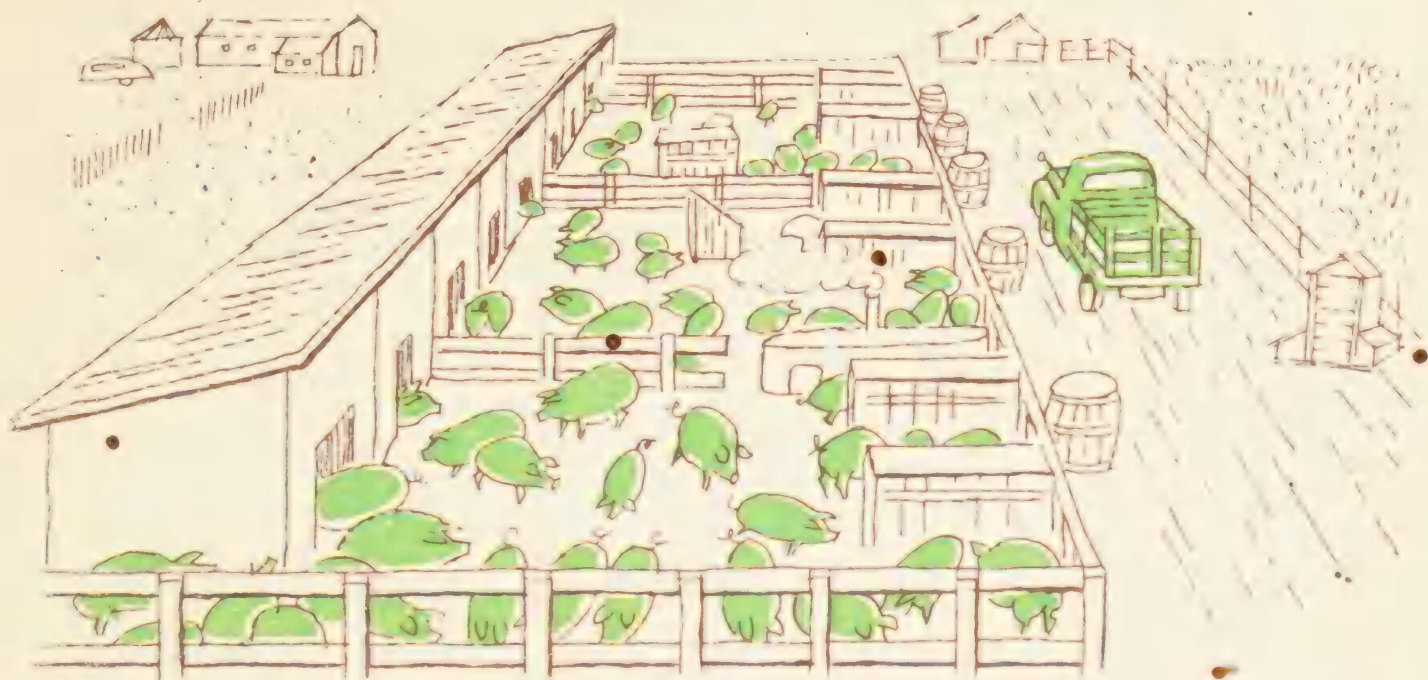
He has found broilers profitable for two reasons: Small processors sometimes offer him a 3¢ premium because they can't take 20,000 to 40,000 at a time—a common number for big broiler operations. Also, broilers give him a two-way choice. One year when prices were low he switched 1,000 White Rock pullets to the range, and grew them to be sold as ready-to-lay pullets in the fall.

Bob uses the very latest research. For example: He was getting a pound of gain on 3.15 to 3.3 lb. of feed. He heard that growers were doing better on a new ration containing hydrolyzed whey. He switched to it and has been getting a pound of gain on 2.62 to 2.97 lb. of feed.

Oh, yes—he's planning to add 4,000 chicks soon. You see, he has four boys—Bobby, 12; John, 11; David, 10; Mike, 8—who are already helping a lot with the light work.

There are 200 Pekin ducks and a small colony of guinea hens. Five Nubian goats provide plenty of milk, butter, cheese, whipping cream, and chevon (goat meat).

A family orchard, some berry vines, and a vegetable patch furnish all the fruit they can freeze and eat. George, her son, has 200 colonies of bees. He helps in spare time.



1,000 HOGS—\$10,000 PROFIT ON 40 ACRES

HERE'S a system for raising 100 hogs on 4 acres—or 1,000 hogs on 40 acres. One man does it, with a little help twice a year when the sows farrow, on the Consolidated Products Farm near Des Moines, Iowa.

In this system, all land goes to the hogs and all feed is bought—unless you have land to raise your corn. The profits over the years have been high.

When corn is \$1 and hogs are \$12, this system will net \$8,000 a year for your labor.

With corn at \$1.50 and hogs at \$18, net should be \$14,000.

And with corn at \$2 and hogs at \$24, net should add up to \$20,000.

The system involves most careful attention to breeding, management, and nutrition. Hogs are fed on concrete in planned units and with carefully measured rations. These results are likely if you follow the system:

1. Hogs Saved: Eight or more hogs are saved and marketed per litter.

2. Feed Saved: Each 200-lb. hog produced on 9 bu. corn, 66 lb. of 40% buttermilk emulsion, and 0.4 lb. mineral.

3. Fast Growth: Pigs weigh 3 lb. at birth, 200 lb. or better at 5½ months.

4. Labor Efficiency: One man can raise as many as 1,000 hogs a year,

with only a little help twice a year.

5. Land Use: You can raise 100 hogs on 4 acres, 1,000 hogs on 40 acres. This is a permanent setup.

6. High Markets: You can hit these with meat-type hogs.

Here are actual figures for spring pigs last year on a 40-acre farm near Des Moines, Iowa:

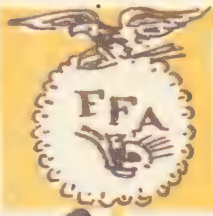
An average of 8.31 pigs was marketed from 61 litters. They went to market at 5½ months, weighing 200 lb. They ate 321 lb. of feed per 100 lb. of gain. Cost per 100 lb. of gain was only \$12.21—and they sold for \$24.56.

After deducting all costs except labor, the 665 hogs returned \$16.72 each—or a whopping \$11,118.80 for labor on the spring pigs alone.

Hogs were at a good price last year, but this system has returned good profits on this small farm even in years of low prices. Here's the labor income for hogs since 1950—both spring and fall litters:

Spring pigs in 1950 netted \$7,613; fall pigs, \$9,761. Spring pigs in 1951 netted \$6,961, and fall pigs (which sold for only \$17.17) netted \$1,440.75—a total for the year of \$8,401. Spring pigs in 1952 brought a labor income of \$5,122, and fall pigs \$7,694.

Any doubt now as to why corn-belt farmers call hogs the mortgage lifters?



VOCATIONAL
AGRICULTURE

TO MAKE THE
BEST BETTER



13
SECTION



FARM YOUTH ON THE GO

"WANT to know who the best farmers in this country are?" asked the county agent.

"I'll tell you," he volunteered enthusiastically before we could get in a word. "They're the young fellows between 30 and 40 who've been either 4-H club members or Future Farmers—many times both. Three things set them apart:

1. "They're farming because they want to farm—they're interested in it.

2. "They've learned enough to know they don't know it all—that there are new things coming along every day. They recognize that while Dad's way may have been all right in his time, there is probably a more profitable way today.

3. "Very important, they enjoy the competitive aspects of farming. They've made it almost a game. They want to get those hogs off to market in 5½ months, to milk cows that give 12,000 lb. of milk, to raise 100-bushel corn, to do better than their neighbor."

He paused a moment as if he'd just discovered something for the first time. "And I'll add one more thing. These fellows are the best community leaders we have!"

There are more than two million Future Farmers of America now at work on the farms and in the communities of our country. Former 4-H club members—now grown men and women—also number in the millions.

They're all making a real impact—in agriculture, yes, but equally important, on the nation itself.

4-H CORN CHAMP GROWS CORN FOR 26¢ A BUSHEL

JOHNNY BACH, 16-year-old 4-H club member from Sibley Co., Minn., could give some lessons to his elders in efficient corn production. Last year he grew 143 bu. of corn per acre at a cost of only 26¢ per bu. His profit was \$599 on 5 acres, or \$120 an acre. His record won him the 4-H corn championship of Minnesota.

"DIRT FARMING" DEGREE

IOWA State College now has a course in "dirt farming"—for students who want to learn how to operate a farm.

It's the most popular course in the ag school. Started 10 years ago, its object was to teach the average farmer how to run a farm profitably.



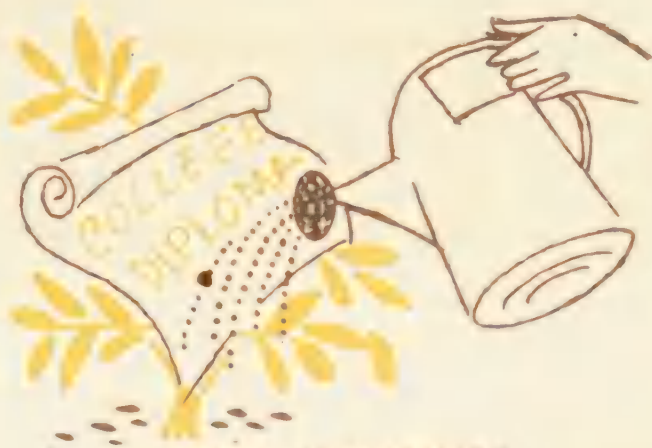
4-H'ERS MAKE \$400 WITH STRAWBERRIES

WANT to make \$400 next summer? These 4-H'ers did it.

Twenty-nine 4-H club members in West Virginia planted 1,000 strawberry plants each. They sold a total of 13,243 qt., valued at \$5,926.76.

The thousand plants planted $\frac{1}{5}$ acre. Caryl Lydick, 14, Lewis Co., West Va., had the best production record. She got \$488.35 worth of berries from her $\frac{1}{5}$ acre. She used geese to weed the patch, and had an investment of only \$25 for fertilizer and mulch.

Jim Wilfong, 11, Upshur Co., picked 983 qt. from his 1,000 plants and grossed \$404.



DON "GROWS" HIS COLLEGE EDUCATION

DON BRITT is only 17 years old, but this 4-H club member already has the money in the bank to pay for his college education. He's "grown" it in the last 4 years.

In 1950 he netted \$2,211 by growing about 6 acres of tomatoes for a cannery. The following year he netted \$991 on 6 acres of beets and \$1,395 on 5 acres of tomatoes.

In 1952 he learned the hard way what most farmers know—that there are a hundred ways to lose a crop. A severe drouth just about wrecked his tomatoes, and an early frost nipped his beans. Only his wheat helped him break even. In 1953 he had a good crop, netted \$2,007. So with more than \$4,000 and a tractor to show for 4 years' work, he entered Cornell Univ.

"What's the secret?" we asked Don.

"Well, I visited the Experiment Station at Geneva and asked for a full set of recommendations. And I followed them," he answered modestly, not mentioning all his work and planning.

He pays his Dad \$12 an acre cash rent, pays for all fertilizer and other supplies. He helps his Dad 2 hours a day after school—full time during the summer. For this work, he uses his Dad's machinery. He also does a little custom work if there's time.

TOMATO CHAMP

JOHN DILLMAN, 19-year-old 4-H club boy from Newcastle, Ind., grew 124 tons of tomatoes on 6 acres, and marketed 67% U.S. No. 1's.



SHOULD FARM BOY GO TO COLLEGE?

A 17-year-old farm boy was talking to his dad: "But I want to farm anyway—why should I finish high school?"

He probably would be surprised if told "*You'll get paid \$40 a day for every day you go to high school.*"

Yet that's exactly what a recent survey has shown. Boys who graduate from high school could expect to earn \$33,000 more during their lifetime than the grammar-school grads. And college graduates could expect to earn \$72,000 more than the high-school grads.

So the farm boy who invests \$4,000 in a college education may reasonably expect a cash return of 18 times his investment, says Russell B. Dickerson, Pennsylvania State College.

"It isn't so much whether a farm boy *should* go to college—as does he *want* to go to college. It's the decision he must make for himself."

But, fellows, remember this: Not just anybody can farm today. Farming probably takes more different kinds of knowledge than any other occupation on the face of the earth. And, if you've read much in this ALMANAC, you'll also know that the parade of progress in agriculture is going forward at a mighty fast clip.

"FUTURE NEVER BRIGHTER"

"I BELIEVE any young man who has a real ambition to farm can get started. In fact, I don't think opportunity was ever brighter than right now," says Hobart Creighton, prominent Indiana Leghorn breeder.

He personally has started on his farms several young men with no money but a lot of get-up-and-go, and has seen them "graduate" to farms of their own.

YOUNG MEN CAN START FARMING TODAY

YOUNG MEN *can* get started farming today, without a pile of money. A Univ. of Minnesota study of 317 young fellows who started farming during the last 5 years showed they began with an average of \$4,700. Half of them had less than \$3,000.

Biggest thing in their favor was their reputation—both their willing-

ness to work and their all-around knowledge.

Relatives helped half of them with loans. The rest got loans from insurance companies, banks, and individual lenders.

Those who started with less than \$3,000 made almost as much as those who had \$8,000.

FUTURE FARMER? BILL'S A FARMER WITH A FUTURE

By the time most Future Farmers leave high school, they've outgrown the "Future." Take young Bill Wiley, who now runs a dairy farm, York Co., Pa.

Four years of high school vo-ag netted \$3,359.38. Projects included dairy, hogs, strawberries, field corn, broilers, and sweet corn.

Then he tackled a rundown 113-acre farm. Two years of hard work (and plenty of planning) netted \$11,193.44.

He pays this tribute to Future Farmers of America: "This organization lifts your sights and helps you organize your efforts. You're kept abreast of constantly changing and improving farm methods."

Bill's goal: His own farm and 100 head of registered cattle. He believes in continuing education, so just recently took a short course in dairy production at Penn State College.



"BATTLE OF CLEARY HILL"

THE Odell, Ill., FFA Chapter has won the "Battle of Cleary Hill." Their victory was in taking over and taming an eroded 20-acre hillside. They transformed it into a highly productive permanent pasture that can maintain its productivity.

THEY LEARN—AND SHOW DADS, TOO

FUTURE FARMERS in Walnut, Ohio, have proved a couple of things to themselves and their dads. Seven of the boys decided to build pig brooders in their farm shop class.

In 2 years these boys saved just under 8 pigs per litter. Other boys in the class who didn't use brooders saved only 7 pigs one year and 5 pigs the next.

That's why more than one dad we've talked to admits proudly: "I'm a better farmer, and we're doing a better job of farming today—thanks to the fact my boy is a Future Farmer."

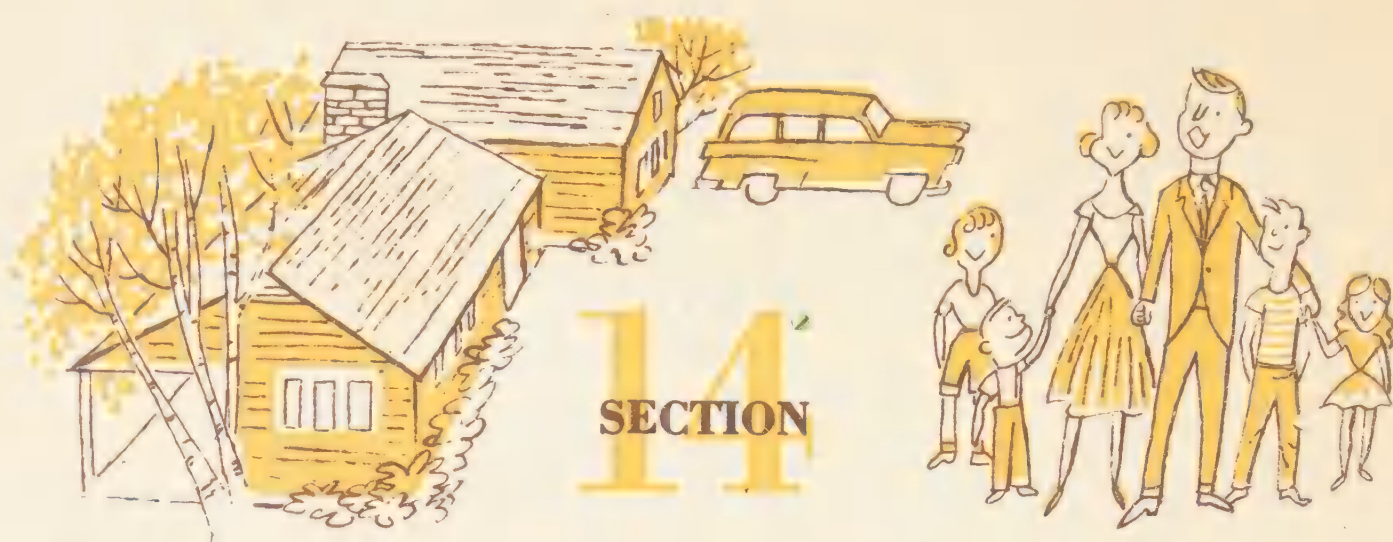
Now they're more ambitious—they're going after a 40-acre project for each boy. If that pans out they'll be reclaiming, or improving, 1,200 acres in their home county. How's that for making a real mark on the community?

"TOWN BOYS" CAN BE FUTURE FARMERS

IT'S OFTEN been said that the greatest advantage farm boys and girls have over those who live in the city are the opportunities they have in 4-H clubs or as Future Farmers.

A business man has done something about that in his community—he gave the Waynoka, Okla., chapter of FFA an acre of land at the edge of town.

There the Future Farmers have put up buildings out of scrap lumber and donated materials to house their steers and pigs. So the "town boys" can now be Future Farmers and keep their livestock on the "FFA farm."



HOME AND FAMILY

WE AMERICAN housewives have fewer household servants than any of our foreign neighbors. Yet we have mechanical servants that work for a few pennies a day, never talk back, and never get sick.

But consider some of the things we are to have in our Home of Tomorrow.

A wave of your hand, and kitchen cabinets come gliding down within easy reach—set in motion by an electric eye. A press of a button opens cabinet doors; another push-button gadget puts away the food mixer. Flour sifting is done by motor. Your new stove gives puffs of hickory smoke to add that country-cured flavor to your food.

Closed circuit television permits you to work in the kitchen—and still keep an eye on the baby in the nursery. You push a button to open or close your draperies . . . to make that glass wall glide open between living room and terrace . . . to open and close the garage doors.

An electric eye keeps food from burning; a revolving spit makes barbecuing easy. Your “furnace” warms your home in zero weather, and air-conditions it through summer heat. Colored lighting repaints your walls with a flick of the switch or sets the mood for your party.

That’s the exciting Home of Tomorrow.

Editor’s Note

This section was written by Lillian Strohm, whose credentials are: National 4-H Club Achievement Champion of 1933; former teacher of home economics and home demonstration agent; master’s degree diploma (which she hangs on the kitchen wall); mother of five children, who are no better or worse than yours.

FIVE IDEAS TO MAKE KITCHEN WORK EASIER

THE NEXT time you are in a dentist's chair holding your mouth open, imagine what it would be like if his office were organized like your kitchen. He would rummage through several drawers for the proper drill—walk across the room for a piece of cotton—and perhaps leave you completely to hunt up the makings for a filling for that big cavity.

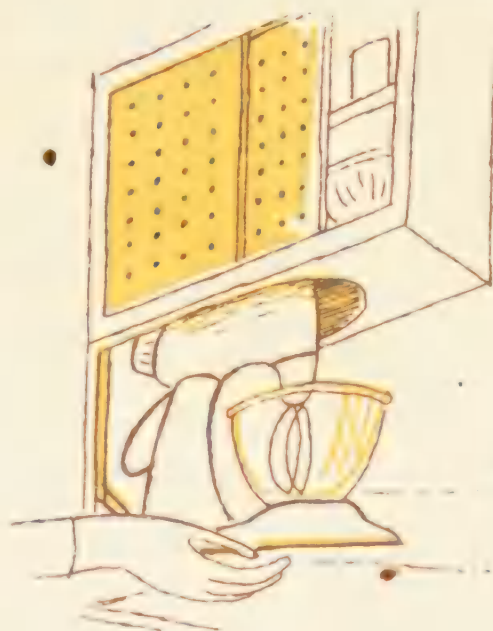
Here are five efficiency ideas to help you to work with dentist-like precision in your kitchen:



1. Use slide-out bins to keep vegetables and fruit handy. Ventilation keeps them fresh.



2. Get a baking tin file which slides out, saves space, and keeps tins from getting battered.



3. Move your mixer out of the way with a special retracting mechanism. It moves mixer up through hole in bottom of cupboard.



4. Have a revolving shelf in the corner of the kitchen cabinet. It gives much more storage space. A gentle turn brings supplies within easy reach.



5. Use small storage bins for flour and sugar, fitted between cabinet space and work surface.

20 NEW TRICKS TO TRY IN YOUR KITCHEN

To keep cheese fresh: Wrap it in a cloth moistened with vinegar. Or cover with paraffin. Some cheeses such as Philadelphia cream may be frozen for storage.

To season when doubling a recipe: It is not safe to double salt or other seasonings. Use sparingly and taste-test.

To save vitamins: Do not expose milk to sunlight. When cooking vegetables, avoid stirring, since oxygen stirred into the food destroys vitamins.

In making meringue pies: Sprinkle powdered sugar over meringue before baking, to prevent knife sticking when cutting pie.

To flour chicken before frying: Put chicken, seasonings, and flour in paper sack and shake.

To keep brown sugar soft: Store brown sugar in an airtight can. If it becomes hard, put in a whole raw potato or apple overnight.

To keep eggs from cracking in boiling water: Prick each end with a pin. If cracked eggs are to be boiled, add 1 T salt to each quart of water to prevent egg from leaking out of shell.

To prevent cake fillings from soaking into cake: Sprinkle layers with powdered sugar before putting in filling.

To make the most of green vegetables: Choose between *appearance* and *nutrition* when cooking. A pinch of baking soda will brighten the color, but the soda also destroys the vitamins.

To get crispy hot French fries: Cook until soft, but not browned. Drain until just 3 minutes before serving. Then, with the fat hot, brown them quickly during these last 3 minutes.

For baking shortcut: To soften butter quickly, fill a bowl with boiling water, empty, and turn it upside down over butter dish.

For lemon-aid: Lemons that have become hard and dry may be restored to freshness by soaking in lukewarm water overnight.

To hold top shut on partly used boxes of cereal, flour, etc.: Use rubber bands.

Take a tip from vegetable growers: Snip the tops off carrots and beets soon after they are pulled. The tops drain moisture from the root.

When making fruit pies: Save the extra juice by freezing it in ice-cube trays to use later in drinks or dessert dishes.

Before scalding milk: Butter the pan on the inside, and the milk will not scorch.

To keep macaroni from boiling over: Add a teaspoon of butter to the cooking water.

When you prepare a lot of vegetable soup: Freeze some in your ice-cube tray and store in deep freeze. A frozen cube will make a hurry-up cup of soup.

To give fried beef liver crunchy goodness: Roll it in crushed ready-to-eat cereal before frying.

For hardening fudge: Use ice-cube tray. It gives uniform pieces. Butter the tray lightly so the partition can be easily removed.



Orange Juice Powder

ORANGE JUICE powder is passing the tests for a concentrate good in flavor, nutritive quality and stability. A California plant plans to make it available to homemakers in 1955.

RESEARCHERS DESIGN CORNELL KITCHEN FOR YOU

"WHAT SHOULD the modern farm kitchen be like?" Cornell Univ. asked the experts.

● **HOME ECONOMIST:** "It must serve the needs of the particular family."

● **ENGINEER:** "It must have good lighting, proper heat and ventilation, and be organized to save steps."

● **ARCHITECT:** "In addition to good design, it must get the most out of the space, at the least cost."

● **SOCIAL PSYCHOLOGIST:** "It must fit the personality of the homemaker, have restful and cheerful atmosphere, and serve family's needs far beyond merely catering to their stomachs."

Result: The Cornell farm kitchen—combination of all these ideas plus 6 years of research by a staff of specialists—is now being tested in the Northeast.

Laid out on the work-center concept, this kitchen has five key areas: (1) sink; (2) mix or food preparation; (3) range; (4) refrigerator; (5) serve.

● With only one theory in mind—*storage at the point of first use*—the experts planned the arrangement of each center.

Frying pans are stored in the range center. No longer are they nested in confusion with the other large pans underneath the sink because "that's the only space large enough to hold them."

Potatoes need not be kept in the basement "so they won't sprout." A week's supply is stored in a ventilated pull-out drawer at the sink center. You make one trip to the basement for potatoes instead of 14 or more. (Getting an extra potato or putting one back when it "looks like that will be enough" may add half a dozen extra trips a week.)

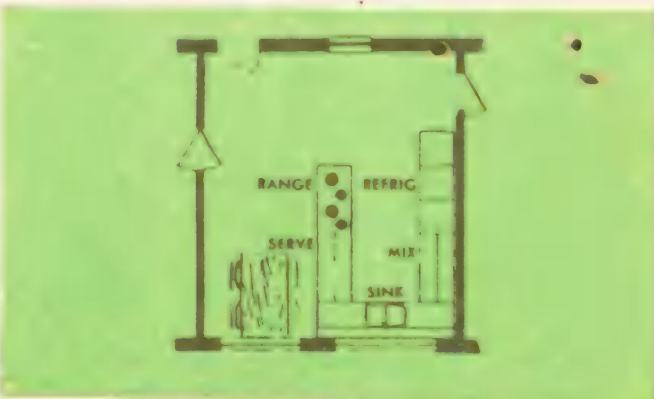
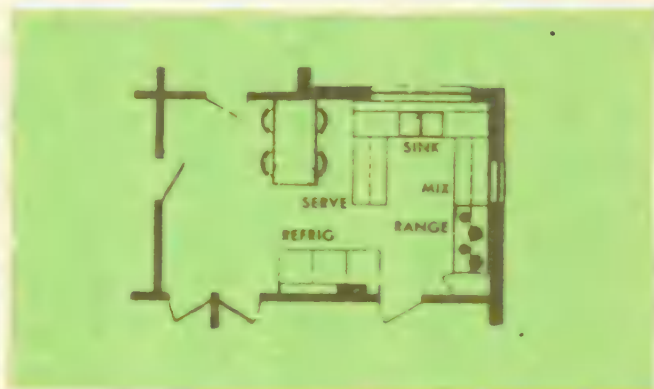
Flour is at the mix center. And it takes no more space there than if stored on those wide shelves near the

back door because your husband decided "you'll need some somewhere."

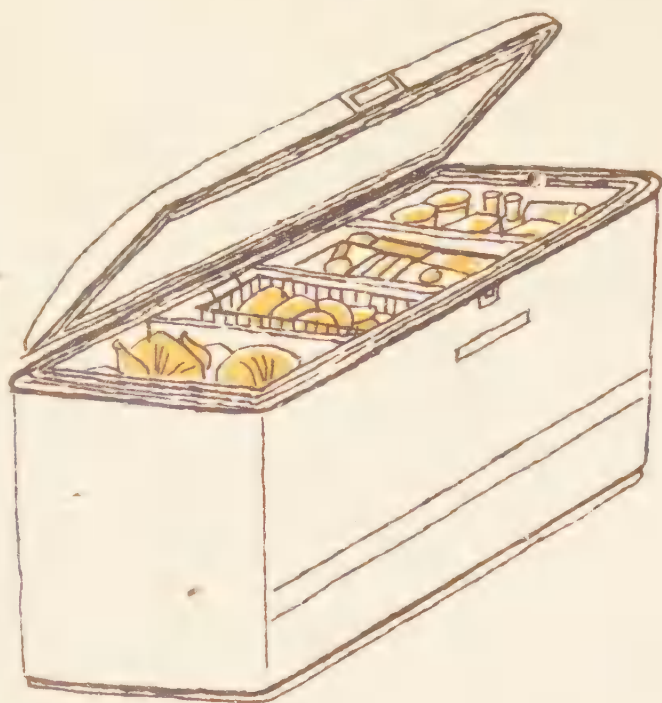
Silverware is in a drawer at the serve center, and sharp knives are in a drawer near the sink. The drawers need not be nested in one location to "look nice."

The Cornell kitchen theory says, in effect: Stack your equipment and supplies in work centers, then call in your carpenter to build storage cabinets around them.

Here are three different arrangements of the five basic work spaces in a kitchen, taken from the Cornell kitchen booklet:



YOUR FREEZER IS A MAGIC SPOT



HOMEMAKERS don't need to wait until the day company arrives to do the baking. Bake and freeze your cakes and pies a week in advance. Here is the latest word from USDA food specialists on freezing baked foods:

1. **Unbaked biscuits** freeze best. Use double-acting baking powder. Without first thawing, bake at 425°.

2. **Baked yeast breads** keep longer than unbaked. Cool promptly after baking; wrap and freeze immediately. Thaw in wrapper for best results.

3. **Fruit pies** are best frozen before baking. Custard pie does not freeze satisfactorily. Meringue toughens and sticks to wrappings. Do not cut steam vents in top crusts until pies are removed from freezer. Bake while frozen, and allow 10 minutes longer than for unfrozen pies. Freezing pie dough is not practical.

4. **Cookies high in fat** and low in moisture are best for freezing. You can freeze them before or after they are baked.

5. **Angel-food and sponge cakes** baked before freezing will keep up to a year. Synthetic vanilla may give an off-flavor to frozen cakes. Thaw baked butter cakes in wrapping at room temperature. Uncooked confectioner's sugar frostings with fat added freeze better than boiled soft frosting.

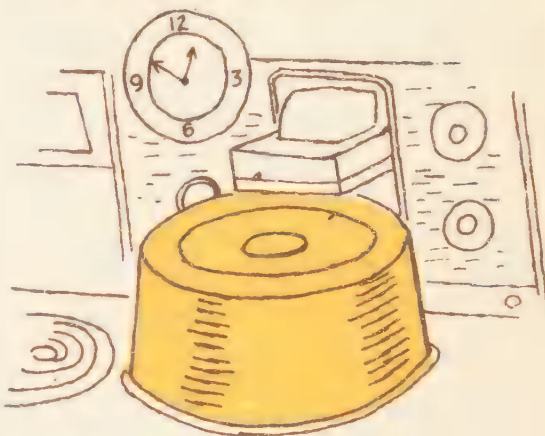
Keep Extra Milk Handy

"DON'T drink the last of that milk—we'll need it for the baby tonight."

That's one warning no longer heard in our house—since we've learned that an extra carton of homogenized milk can be stored in the deep freeze.

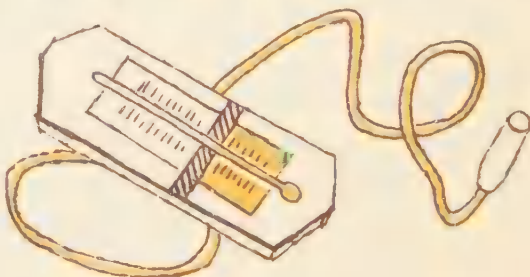
Don't try to freeze unhomogenized milk, because then the natural emulsion breaks down, causing the milk to separate into flaky particles and fat globules when it thaws.

The paper milk carton bulges when frozen, but does not break its seal. Glass bottles may break.



To Thaw Frozen Foods

MANY people have forgotten at some time to start thawing chicken or other foods soon enough to use. But a stove manufacturer is coming to our rescue with a food conditioner that attaches to the stove. It will thaw frozen foods with a hot and cold air circulator which can be regulated. It can also be used to cool hot foods.



Freezer Thermometer

You can now get a thermometer which will show your home freezer temperature without your opening it. It hangs up on the wall; installation is simple.

ATOMIC ENERGY AT WORK IN THE HOME

BUT THE atomic age has now come into the home to serve mankind—and we are on the verge of further revolutionary developments. Using atomic “waste materials,” scientists have destroyed the microorganisms which cause food spoilage. The process uses gamma rays, which are similar to X-rays.

“The use of gamma radiation to pasteurize produce and other fresh foods and to sterilize foods without heat offers many intriguing possibilities,” says L. E. Brownell, Director of Fission Products Laboratory, Univ. of Michigan.

Meat sealed in a container and then exposed to atomic radiation has been sterilized to keep indefinitely. The storage life of berries has also been greatly extended.

Let's hope the vast constructive benefits of atomic energy will turn man's attention from its destructive power.

VITAMIN POTATOES

POTATOES with three times the usual Vitamin C have been selected in Maine and grown in the U.S. Plant, Soil, and Nutrition Lab. at Ithaca, N.Y.

WRONG FOOD WILL FLUNK SCHOOL CHILDREN

YOUR CHILDREN will learn faster in school if they have a well-balanced diet. And they'll fall behind if they don't get the right things to eat.

School tests show it. In one school class in remedial reading, examination showed the majority were malnourished. So 16 of these pupils who were backward in their studies were given a morning supplement of a whole wheat sandwich and a glass of milk, plus a balanced lunch in the school cafeteria at noon. At the end of 3 months, these 16 pupils showed an average gain of 8.9 months in read-

ing ability. They learned more than *three times faster* than they had been learning.

“It is my opinion that 80% of our country's children could have their nutrition improved. If this were done, they would show a corresponding improvement in their school achievement,” asserts I. C. Elliott, Principal, Paradise School, Chico, Calif. “It is a waste of time trying to educate pupils who have such a poor state of nutrition that they cannot carry on a normal learning process.”

SLICK TRICKS IN OUTDOOR COOKERY

TERRY (our 11-year old) won second in the 4-H Club demonstration contest last year with his “Slick Tricks in Outdoor Cookery.” We pass on three of them for use in your backyard.

Corn on the cob cooks best when inner husks are not removed. Remove corn silk and outer husks, then soak corn in cold water one-half hour. Pull back husks and season corn with butter, salt, and pepper. Put husks up over corn, wrap securely in heavy aluminum foil, then cook in or over hot coals, turning frequently. It takes about 12 minutes.

Campfire vegetables (all except peas or corn) are best when sliced on a vegetable slicer almost wafer-thin. Place patty of hamburger on bottom so one side will fry on the foil. Heap sliced potatoes, carrots and onion rings, peas, or corn on top. Season with salt and pepper and wrap in foil. Seal it with double folds. Cook over coals about 10 minutes.

For foil-broiled steak or fish, make a fire with a nice bed of hot coals. Fold a piece of heavy-duty aluminum foil so the double thickness is larger than the steak. Punch holes in foil with a fork, then turn it over so the punched holes stick up. Lay steak on the perforated foil and broil on both sides. Turn only once.

Broil fish the same way. Keep it brushed with melted butter.

ROJA MUTHIAH
47, HOSPITAL ROAD

HELPS FOR THE BUSY HOMEMAKER

To avoid creasing table linen, roll or hang it. Hang linen in loops on pull-out rods, which can be installed in your linen closet. An extra-long drawer will provide dust-proof storage for tablecloths on cardboard rolls.

When washing top part of walls, wear one cleaning cloth tied around your wrist to prevent water from running "up" your arm.

Write your name on bottom of dish with fingernail polish or quick-drying enamel. Use dish at picnic—and get it back. Bake on the name if you want it there permanently.

Soap scraps tied in an old sock will make suds in a washer, yet prevent bits of soap clinging to the wash.

To keep picnic cloth anchored on the table, stitch a corner pocket across each corner. A small stone in each pocket will make cloth stay put in windiest weather.

To give picnic fire a good start, place a couple of lighted candle butts in with the kindling.

Prevent scrapbook pages from sticking together by putting waxed paper over each newly pasted-up page.

Silver salt-shaker tops will not corrode if you cover the inside with hot paraffin. While the paraffin is cooling, open the holes with a toothpick.

Apply luminous paint or tape to rim of flashlight so you can find it when the electricity goes off.

Sagging cane bottom in chair can be brought back to normal by soaking cane with hot water. It shrinks back as it dries in open air.

To prevent heavy furniture from marring floors, slip old wool socks over the legs when moving the furniture. Or keep cardboard under legs.

To start plant slip: Top part must be kept out of the water. Punch hole in piece of cardboard and stick stem

through it into water, letting slip rest on cardboard.

Use plate-glass shelves in your linen closet. They require no paint or covering and are easy to clean.

To separate two glasses stuck together, put ice water in the inner one and set the outer one in hot water.

To make miniature trellis, snip off hook of wire coathanger, bend remaining wire into a loop, thrust ends into ivy pot.

Handy, labor-saving duster for coiled bed springs can be made from an old dish mop, lightly oiled.

When removing buttons, don't nick the fabric! Just slide a comb under the button. Cut thread by running a razor blade between button and comb.

Caps of nail polish and glue bottles won't stick if the screw threads are greased with cold cream or oil.



Stoop Labor Takes 19 Times the Energy

THE EFFICIENT homemaker stores things where they are used, and at easy-to-get-at heights. Reaching and stooping put backache in housework.

Home-management specialists at Iowa State College say 42 in. is the most restful height at which to work.

It takes twice as much energy to reach things stored 56 in. from the floor. Reaching up 72 in. takes four times as much energy.

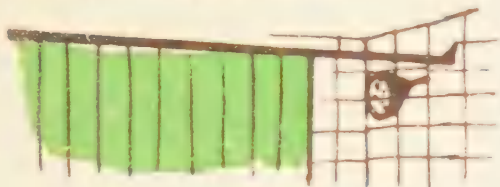
And No. 1 Backache Bringer is that next-to-the-floor reaching. It takes 19 times as much energy to stoop for something 3 in. from the floor.

WHAT'S NEW IN GADGETS FOR THE HOME

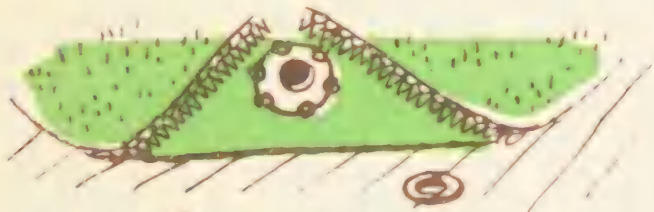
THE PARADE of new things for the modern home keeps coming along. (Two jumps ahead of the family budget, the editor thinks!)



Heater-Light-Fan: A combination of heater, light, and fan is ideal for warming up cold bathrooms. Ceiling location does away with danger of children getting burned.



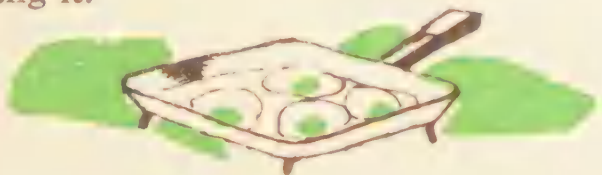
Shower Protector: This built-in shower curtain of rigid plastic panels slides on aluminum tracks. Keeps bathroom floor dry.



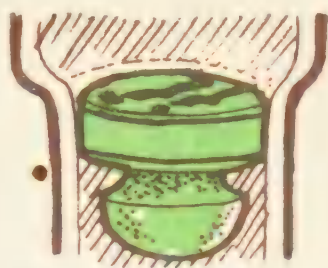
Rug Anchors: Sew the snap into bottom of rug, and snap into stud which has been driven into the floor. Two such snaps will make a scatter rug stay put.



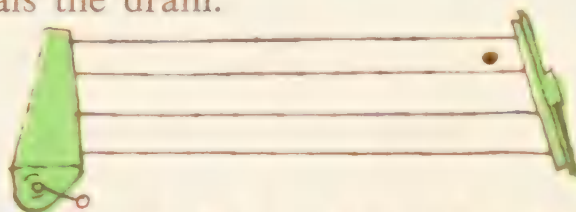
Pre-pasted Wallpaper: All you do with this pre-pasted and trimmed paper is to immerse it in water and hang it.



Electric Frying Pan: This has a built-in thermostat to keep temperature just right for frying bacon, eggs, or pancakes.



Basement Drain Stopper: Does your basement flood? Check valve will permit water to run out of basement, but prevents it from backing up from the sewer. A rubber float rises and seals the drain.



Automatic Clothesline: Five 30-ft. lines wind up in case like a window shade when not in use, can quickly be stretched indoors or out. White plastic-coated wires provide 150 ft. of line space.

New Refrigerators Do Everything But Cook

THE THINGS they ask a refrigerator to do these days!

You can get one with a built-in cold-drink dispenser featuring an outside tap. Needless to say, this is a big favorite with the kids.

"Lazy Susan"-type shelves put all the refrigerator space at your finger tips.

You can buy new models in colors to match your kitchen.

And doors—they'll open from either side, the left or the right. One model even opens from both sides, while still another splits down the middle.

Automatic defrosters keep refrigerator working at top efficiency with no defrosting mess.

New models have butter keepers, cheese keepers, egg dispensers. One even has a built-in coffee meter which measures out the correct amount of coffee for your pot.

DON'T LOOK NOW, BUT— YOU HAVE COMPANY!

HOUSE DUST is not just dirt. Samples of house dust taken from vacuum cleaners in dozens of homes showed a teaspoonful contained millions of living mold spores. The spore count was low at night but increased with household activity during the day.

Tests of cotton, Kapok, and sisal indicate that all of them have a high load of mold as they come to the furniture manufacturer. This increases as they are used in the home.

When we sit down on an overstuffed sofa, we may push millions of mold spores out into the air of the room. If we happen to be sensitive to them, we may sneeze or have other allergic symptoms.

Medical men know airborne mold spores rank next to pollen as a cause of respiratory allergy—sniffles, sneezes,

coughs, etc. The present research done on mold in the home is only exploratory, but you will hear of more conclusive studies in the near future.

PREPARING MEAT FOR FREEZER

VEAL and pork should be cut and wrapped as soon as the carcasses are thoroughly chilled, suggests Lyman Bratzler, Michigan State College. Beef and lamb can be aged 7 to 10 days at from 32° to 36°. Good wrapping materials are moisture- and vapor-proof cellophane, aluminum foil, and laminated papers. Waxed locker papers are good only for short periods.

Meat should be kept spotless during processing, warns Lyman Bratzler. "Off odors and discolored meats coming from your home freezer can be traced to the slaughtering and processing methods."

4 NEW WAYS TO MAKE IT "LIKE NEW"

HERE are some unique things now on the market that have caught our eye recently. They're designed to touch up furnishings to make them like new.



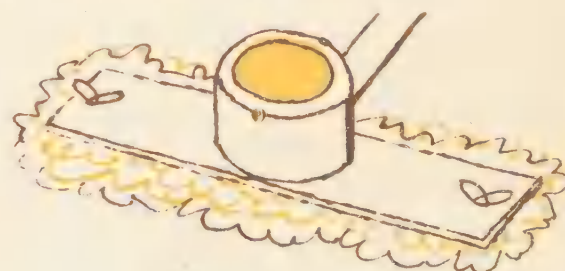
Scratch Eraser: You can "erase" furniture scratches in a hurry by rubbing this little stick lightly over the spot. It fills and colors at once.



Fixer for Chipped Enamel: Paste-like enamel comes in pencil-like tube. I've found it gets rid of those enamel scratches or peelings in a jiffy. You can also get other materials like paint in these small tubes with built-in brushes.



Touch-up for Upholstery: You can touch up faded upholstery with a fabric dye that comes in the form of a spray. First, use soapless cleaner on the fabric and let dry well. Then spray on the new color.

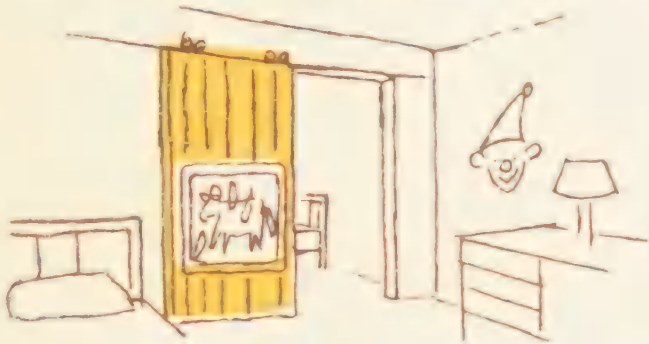


No-stoop Waxer: Here's a long-overdue floor waxer which dispenses wax as you gently push it back and forth. You put wax in container on top. No more disagreeable on-your-knees labor.



TODDLER'S PULL TOY

TO MAKE a toddler's pull toy, punch a hole in the center of the lid and bottom of an oatmeal box. Thread a string through the bottom hole and knot it. Loosely loop string around outside of box and knot other end inside hole in lid. Toss handful of bells in box and glue on lid. Fasten an empty spool to end of 2-ft. length of cord. Tie other end of cord to middle of first looped string.



SLIDING DOORS

SLIDING doors between boy's and girl's bedrooms afford larger play area during daytime—privacy at night. Some doors are of folding type. Others are of hard board which slide into opposite wall. These can be decorated or used as a blackboard and bulletin board.

DYE YOUR FURNITURE

DYE your unpainted furniture! It's easy to do, costs little, and your teenage daughter can get some really riotous effects. Mix up ordinary fabric dyes as you would for dyeing fabrics, then apply with paint brush or clean cloth. If you want a permanent finish, apply white shellac, rub down, and varnish.



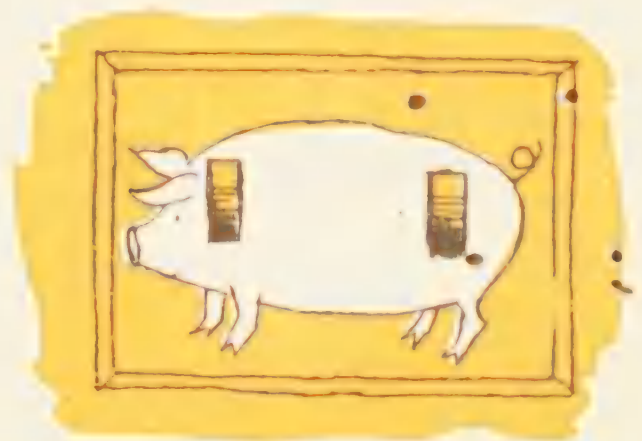
TRAY FOR A SICK CHILD

SERVE small portions of food in colorful paper muffin cups set inside muffin tins. Small glass fits in tin, too. You can pretend this is airplane meal.



HOME DRINKING FOUNTAIN

TO ENCOURAGE children to drink more water—and still not keep the cupboard empty of glasses—install a drinking fountain. You can get an attachment that fits on a regular faucet.



GLO-SHIELDS FOR LIGHTS

ON LIGHT switches you can put glo-shields, shaped like animals, to help children find switches in the dark.

LAUNDERING TIPS TO SAVE YOUR GARMENTS

"WASHABLE" on a garment label today does not mean you can wash, dry, and iron the garment as our mothers and grandmothers have done through the years. To tell the whole story some labels should read: "Washable, but don't bleach! Don't starch! Don't wash in hot water! Don't press with a hot iron! Don't dry-clean!"

Glass fiber used in coat linings, curtains, and draperies should be hand-washed to prevent breaking of filament yarns. Never hang with clothespin or stretch. Let drip-dry, or roll in bath towel to damp-dry. Don't bleach or starch.

Vicara fiber in garments is usually blended with wool, nylon, or rayon. Hand-wash in warm water.

Orlon, Dynel, Acrilan are more test-tube fibers, which have low absorption qualities and can be machine-washed if construction permits. Do not starch or bleach. Wash only in warm water. Do not let iron come into contact with fabric. If ironing is needed, use press cloth and low heat.

Dacron is a strong fiber and can be machine-washed if seams are finished to prevent fraying. My husband's Dacron shirts have been machine-washed 2 years and show no wear. Spin-dry and finish drying on hanger. Never use an iron!

Nylon is very easily hand-washed and may be put in a washer if the construction is sturdy. Never wash white Nylon with colored garments. To prevent it from yellowing, use softened water and soap with a 5-minute soaking period before agitation. Rinse well. To remove yellowness, use chlorine bleach followed by vinegar-water rinse.

Silk, rayon, and acetate fibers are not strong when wet, so use light loads and plenty of water in the washer. Use light-duty soap and a short spin-drying time. Do not bleach.

Wool if washable should have very

little agitation in washer or dryer; otherwise it may mat. Use only warm water, and rinse with warm water. A long spin may be needed to damp-dry, because fibers are very elastic.

Cottons are 25% stronger when wet than dry, so they can stand the longest wash period. Today you must pay special attention to the finish of cotton. Resin-treated cottons should not be bleached. Embossed cottons should not be ironed. So if there is a new finish on cottons, follow manufacturer's directions for laundering.



THE CASE OF THE BROWN SPOTS

Crime: Who put the mysterious brown spots in those new cotton dresses—spots which later turned to holes?

Sleuth: Verda McLendon, USDA, textile chemist.

Clue: Most homemakers complained spots were in dresses with zippers.

Solution: Upon investigating zippers, Sleuth McLendon found that the offending zippers were made of two different metals, copper and aluminum. These metals plus an electrolyte (minerals in hard water, detergent or sodium chlorides in some starches) formed a simple electro-chemical cell. The cell formed acid, and the heat from the iron made damaging spots.

Crime prevention: Avoid zippers made from copper and aluminum combined. If you fold damp when preparing for ironing, have zipper on outside.

THINGS TO KNOW ABOUT MAN-MADE FIBERS

Material	Strong Points	Weak Points
ACETATE	Good draping qualities. "Chromespon" is colorfast. Nice luster.	Sensitive to heat. Low strength. More difficult to launder.
ACRILAN *	Does not mat. Resistant to weathering. Blends well with rayon and wool. Does not shrink, sag, or stretch. Gives warmth without weight.	Will burn. Launder by hand unless used in blend.
DACRON *†	Wrinkle-resistant when wet or dry. Resiliency good; used in pillows. High strength. Easy spot removal. Yarn good for hand knitting; holds shape well.	Highly electrostatic. Low moisture absorption, but better than Nylon.
DYNEL *† (made from natural gas and salt)	Fire - resistant. Acid - resistant. High strength. Good for pile fabric or trim on boots. Wool-like appearance; blends well.	Melts at low temperature. Soluble in acetone.
FIBERGLAS *†	Won't burn, melt, or char. Sag-resistant and sunproof. Good electrical resistance.	Fibers break under abrasion or sharp creasing. Difficult to dye.
FORTISAN (developed for parachutes)	Not affected by sunlight. Won't stretch or shrink. Good textile strength.	Low moisture absorption.
NYLON *† (elastic Nylon called Helanca)	Strong textile strength. High abrasion resistance. Easily dyed.	Low moisture absorption. Yellows on heating. Produces static charge.
ORLON *†	Weather-resistant. Retains sharp creases—can be permanently pleated. Holds shape well in deep-napped fabric. Good textile strength.	Produces static charges. Cannot bleach. Hard to dye. Requires low ironing heat.
RAYON (developed in 1880's)	Very absorbent. Dyes very well.	Slower-drying than other fibers listed. Loses 40% of textile strength when wet. Shrinks with repeated washings. Loses shape easily.
SARAN * (woven into plastic yarn)	Will not burn. Toughest of all fibers. Low absorption valuable in house furnishings.	Crumpling results in permanent wrinkles.
VICARA *† (made from protein in corn)	Does not produce static. Very resilient. Will not stretch or shrink.	Low textile strength.

* Resists moths and mildew.

† Washes easily and dries rapidly.

BABY SITTERS are complaining at our house: no homemaking magazines to read. We tear them apart and file pages under such subjects as lighting, painting, space-savers, etc. We live in a large old home and are constantly looking for new ideas to make it better suit our family needs.

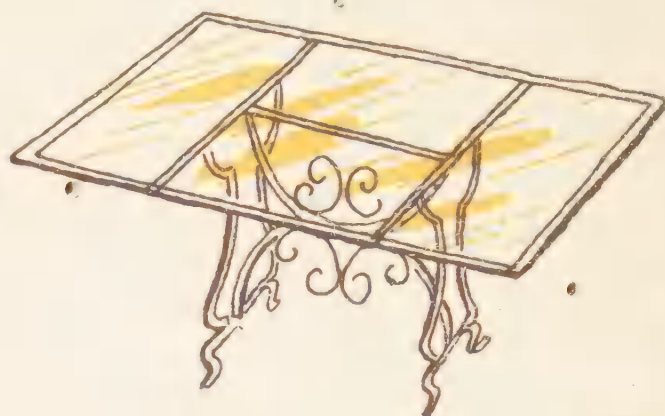
We hope these two pages will give you some new ideas for your "New House" or "Remodeling" file.



Bookshelves: We added bookshelves at one end of our 27-by-15 living room in place of double sliding doors which divided it from the dining room. We set the double doors flush with the dining-room wall. On the opposite side, in the 8-in.-deep space, we then installed metal strips with brackets to support the green glass shelves. The construction glass is $\frac{3}{16}$ in. thick and comes in yellow, cream, green, rose, or black. It can be cut to specifications.

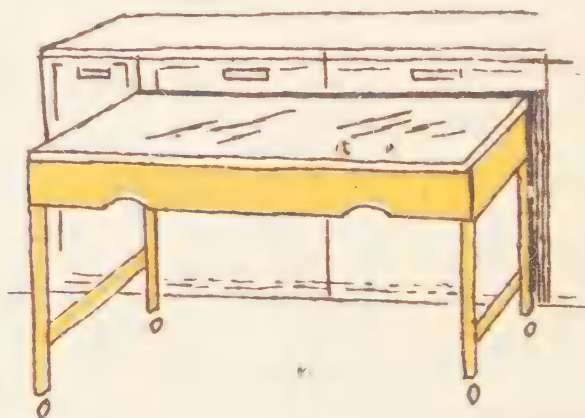
Wall Shelves: Narrow shelves may be made by leaving studs exposed on one side of a paneled wall. This works best when you add a partition, using 2-by-6 studs. Glass sliding doors can be added if desired.

Move-easy Furniture: Modern trend is to put concealed casters on all heavy pieces of furniture. It makes cleaning easier. And a second advantage is being able to rearrange the room without hearing, "Well, I'll help you, but why change it? It looks all right the way it is."



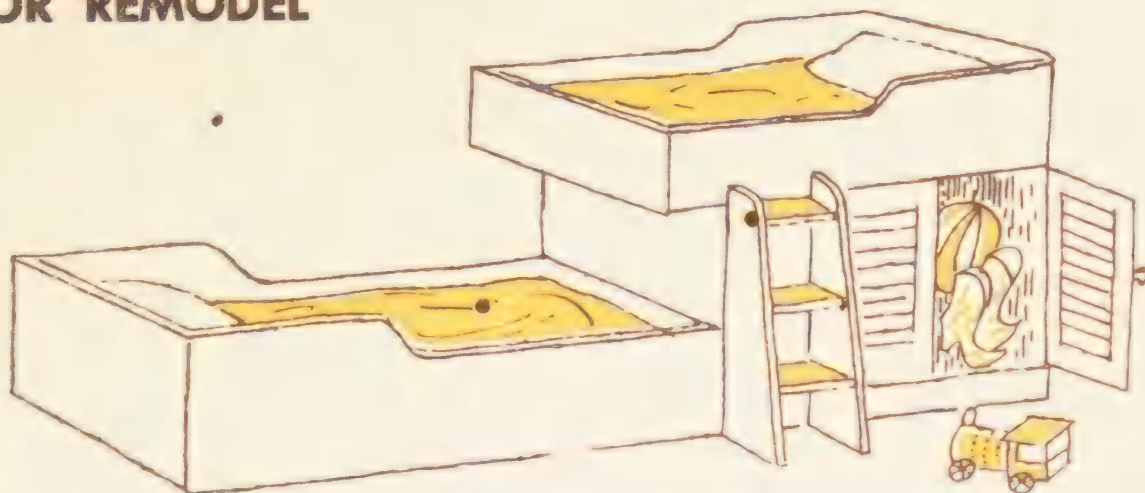
Glass Table: Construction glass, colored or clear, will make a table any height, size, shape, or color. The larger the table, the thicker you will want the glass. This luxury-size $\frac{3}{4}$ -in. glass top is mounted on an inexpensive round end table, painted to blend with the room furnishings. Want a wrought-iron base? Use the treadle off an old treadle sewing machine.

Cheap Bedroom Storage: One solution to the high cost of built-in bedroom storage is to use old chests. Line them up along one wall. Make heights uniform by sawing off the longer legs, and put a common top over all of them. Remove drawer pulls from old chests, refinish wood, and attach modern pulls as illustrated.



Roll-away Table: If you are building or remodeling, it's foolish to be conventional when something else would serve you better. The neatest trick for ridding the kitchen of a dining table between meals is to fit it compactly into the work area. On casters, it rolls in or out so easily a child can do it.

REBUILD OR REMODEL



Overlap Beds: When cousins used to visit on the farm, the young children sometimes slept four in a bed—two at each end. Today the new trend is to build in beds to overlap at the

foot end. Toys can be stored under the higher bed. If toys are put in bins on casters, they may be pulled to any room in the house, then hauled back for storage.

FACTS ABOUT NEW FLOOR COVERINGS

TYPE	ADVANTAGES	DISADVANTAGES	CARE
ASPHALT TILE	Can be used on concrete which is in contact with ground. Resistant to water, acids, alkalis, fire. Durable; will not fade, curl or buckle. Not expensive.	Unless grease-proof type is used, not suitable for kitchens. Easily scratched. Soon shows any defect in subfloor.	Wash with neutral soap and rinse well. Use only self-polishing liquid wax.
RUBBER TILE	Resilient and comfortable. Wears well. Clear colors.	Grease, oil, or strong cleaners will damage.	Wash with neutral soap and rinse well. Use water-emulsion wax.
VINYL	Clear colors and attractive patterns. • Very durable, easily cleaned. Resistant to stains.	May look dull unless waxed.	Use paste or liquid wax.
LINOLEUM (inlaid)	Resilient, smooth. Easy to clean—does not stain easily. Tends to deaden noise.	Easily dented by furniture. Moisture underneath may cause rot and buckling.	Use water sparingly and only neutral soap. Rinse well and re-wax. Use only fine steel wool for hard-to-remove spots.
CORK TILE	Luxurious to walk on. Quiet. Beautiful texture.	Very expensive. Not entirely grease-resistant. Surface is porous until sealed.	After sealing, either paste or liquid wax may be used.

TODAY'S PAINTS ARE ALMOST FOOLPROOF

TODAY, two-thirds of all paint is put on by homeowners themselves. While this may be part of the do-it-yourself movement, I give lots of credit to the foolproof paints we can buy. They're wonderful! And because painting is so easy, it's a pleasant diversion from the routine of running a home. Here are some tips which may be helpful.



Select Right Paint!

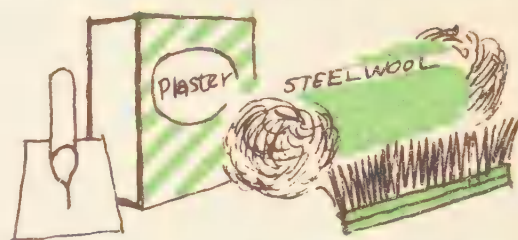
Enamel paints are most popular right now because of the advantages of the new alkyd group, sometimes called flat enamels. The word enamel does not necessarily mean a high-gloss paint; it refers to the classification of paints in which resins are the major ingredient. The alkyd flat gives a dull finish, goes on evenly with no lap marks, gives little odor, dries quickly, covers most surfaces with only one coat, and is one of the easiest paints to wash. The high-gloss enamel is still available and is recommended where constant cleaning is necessary, as in a kitchen or bathroom.

Oil-base paints have always been popular because they give a wet edge and prevent lap marks; but this also means they take longer to dry. They are available in all of the colors of the rainbow and are long-lasting.

Rubber-base paints include more than the latex paints. Many new ones have been produced with the advent of the new rollers. They roll on very easily and are commonly used on

living-room and bedroom walls and ceilings. They can be used on new plaster without the usual sizing.

Water-thinned paints are waning in popularity because they do not stand up under cleaning. Occasionally they are used for short-term decorating.



How to Prepare Surface

New plaster walls: They should be tested for dryness and alkalinity. To test for excess lime, use 25 drops phenolphthalein solution in 1 gal. water. Brush on wall. If pink color appears, you should neutralize. Mix 2 lb. zinc sulphate crystals with $\frac{1}{2}$ gal. water. Apply to wall, allow to dry. Brush off any crystals.

Painted plaster walls: Use lime-resistant primer. Patch any holes or cracks with plaster patcher. When dry, apply shellac so patching will not show through fresh paint. Wash with detergent and allow to dry thoroughly.

Wood-paneled walls, doors, trim, or furniture: Remove any wax with turpentine; other soil may be washed off with detergent. If glossy, use sandpaper or apply liquid sandpapering product so paint will adhere. Woodwork in poor condition should have paint removed with paint remover. Then wash with turpentine.

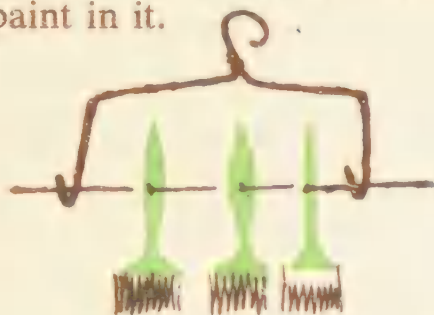
Metal on windows, doors, radiators, or pipes: Rusted metal should be cleaned with steel wool, a wire brush, kerosene, or a rust-removing chemical. New metal needs rust-proofing with metal primer before painting.

Wood floors or stairs: Clean thoroughly with detergent and allow to dry. If old finish is in poor condition, sand off and remove all sand with vacuum cleaner.

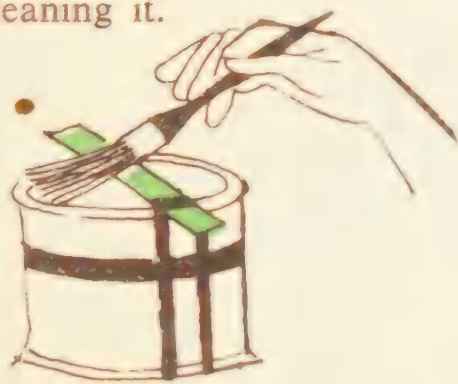
NINE POINTERS FOR EASIER PAINTING



Foil-lined Pan: When using a paint roller, line your pan or container with heavy aluminum foil. It saves lots of scouring afterward. It also permits you to use an old pan that had other paint in it.



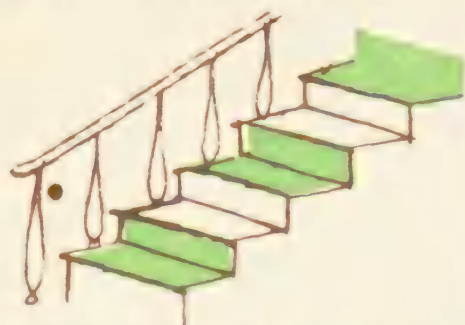
Brush Hanger: Bore small hole through paintbrush handle. Wire from an old coathanger can be run through hole to make a brush hanger. This will permit you to dangle brush in a can of turpentine—or hang it on wall after cleaning it.



No-drip Tip: To keep paint from running down side of can, place a thin piece of wood 1 in. wide across top and tape in place. Wipe your brush on this.



Hard-to-get-at Spots: To paint behind hard-to-get-at places, such as behind radiators, take small pad of wool or the cover from an old paint roller, and fasten to end of stick.



To Paint Busy Stairs: Just paint every other step on one day. Then, when these steps are dry, do the other steps.



Left-over Putty: Store in can filled with water. Put on tight lid.



No-spot Painting: To avoid daubing bits of hardware with paint, cover them thinly with petroleum jelly before you start painting. Wipe off after painting is finished.



Paint Strainer: Old Nylon stocking makes good paint strainer. Use the top 10 or 12 in. Tie knot in lower end. Slip open end over can and pour.



Paint Preserver: Melt paraffin and pour over paint just as you would for jams and jellies.

IF YOU HAVE CHILDREN . . .

START a "Family Council"; it can pay off in many ways, says Thomas Poffenberger, Oregon State College.

- It gives children the feeling that "This is my family" and makes them more willing to take responsibility in it.
- It reduces general complaining, since they feel they have been consulted about issues.
- It gives them the feeling that their parents are considering them as individuals rather than something to be exploited.
- It gives them valuable experience in learning to make decisions, in taking responsibility, and in learning to handle family finances.
- It gives them experience in the democratic way of life.

First-aid Rules

TAPE rules of First Aid inside of medicine cabinet for baby-sitter or other members of the family. Also post name and phone number of family doctor.

Nature's Toothbrushes

AN APPLE a day will help keep the dentist away, says the American Dental Association.

Foods that require thorough chewing are called detergent foods. They literally sweep over and between the teeth and over all the soft tissues, cleansing and stimulating them. These foods, such as oranges, apples, and fresh raw vegetables, are "nature's toothbrushes."

"WHAT WE THINK OF OUR FAMILY COUNCIL"



"WHY DON'T you call a family council to see if you can go to 4-H camp?" Karen advised her playmate.

"Family council — what's that?" asked Kay.

Ten-year-old Karen was much surprised that every family didn't have a family council. Ours was started when the older children were 5 and 6. We find it a most valuable tool in family relations to help the children develop. We have about one meeting a week, and discuss just about everything from should we get a new gar-

den tractor to what should be the punishment for sassing.

We asked our four oldest to write down what they thought of our Family Council. Here are their unedited answers:

Terry, 11: "Oh, I like them because I can always get my 2¢-worth in. And I have something to say about everything that's done in the house."

Karen, 10: "The best thing I like about Family Council is when we call a special meeting to see what we do for recreation. . . Whether we should have a picnic, play baseball, go to a show, or just go for a ride."

Bob, 8: "I'm glad we have it to settle things, like if I want to change jobs I can trade an old one for a new one and maybe even get more money for it."

Cheryl, 6: "I like to bring up things. Sometimes they tease me. I don't think people should tease people about 6 years old, and if they hurt me I don't think I should punish them. My mother or father should do that."



PLAY "20 QUESTIONS"—SCORE YOURSELF AS PARENT

How ARE you doing as a parent? Here's a game of "20 Questions" which will help you find out. Give yourself 5 points for each *usually* that you circle; 3 points for a *sometimes*; and 0 for a *never*. Seventy points is "passing" for a parent. Test was designed by Florence S. Abington, Family Life Specialist, Louisiana State Univ.

In each statement circle the word that makes the statement true for you:

1. We (*usually* . . . *sometimes* . . . *never*) give each child a part in doing the work and in making family plans.
2. We (*usually* . . . *sometimes* . . . *never*) admit our own mistakes and say, "I am sorry." We are charitable toward our children's mistakes.
3. We (*usually* . . . *sometimes* . . . *never*) respect the privacy of our children by allowing each to own some things that we do not think of using without permission.
4. We (*usually* . . . *sometimes* . . . *never*) see that each child has some time to work on personal projects without interference.
5. We (*usually* . . . *sometimes* . . . *never*) plan our spending to teach the children wise use of money.
6. We (*usually* . . . *sometimes* . . . *never*) keep promises to our children.
7. We (*usually* . . . *sometimes* . . . *never*) plan for and have fun with our family.
8. We (*usually* . . . *sometimes* . . . *never*) avoid placing our children at a disadvantage by comparing them with other children.
9. We (*usually* . . . *sometimes* . . . *never*) stick to it when we say "No."
10. We (*usually* . . . *sometimes* . . . *never*) try to keep our minds open to see both sides of all questions.
11. We (*usually* . . . *sometimes* . . . *never*) take our hurts and losses without complaining and encourage our children to do the same.
12. We (*usually* . . . *sometimes* . . . *never*) set the example of parental respect by believing in each other.
13. We (*usually* . . . *sometimes* . . . *never*) try to make mealtime a sharing of good cheer.
14. We (*usually* . . . *sometimes* . . . *never*) make an occasion of every birthday.
15. We (*usually* . . . *sometimes* . . . *never*) go with our children to church.
16. We (*usually* . . . *sometimes* . . . *never*) help our children respect authority by obeying laws ourselves.
17. We (*usually* . . . *sometimes* . . . *never*) give our children the satisfaction of knowing that our love for them will weather any storm.
18. We (*usually* . . . *sometimes* . . . *never*) help our children make decisions for themselves rather than tell them what to do.
19. We (*usually* . . . *sometimes* . . . *never*) settle our differences in private and thus can present a united front to the children.
20. We (*usually* . . . *sometimes* . . . *never*) save punishment for very important things, lest we become nagging parents.

HOUSE PLANTS HELP "FURNISH" A HOME

INSTEAD of the traditional queries about rugs or furniture, I frequently hear this question: "What kinds of plants are you using in your new home?"

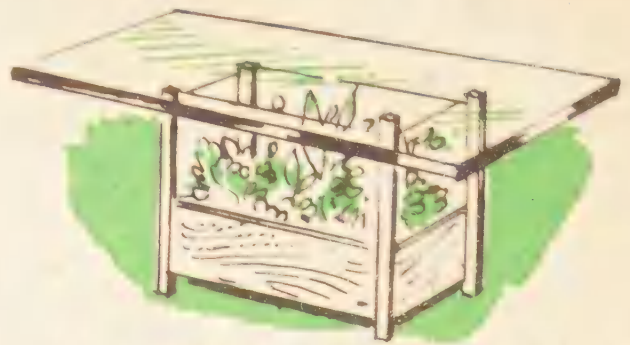
Interior decorators have convinced most of us that the natural green look of house plants helps soften the cold straight lines of modern house furnishings. This is especially true in farm homes, where straight lines are popular because they help keep housework to a minimum.

Large old farm homes are enriched with huge green plants that seem to "belong," rather than small, scattered potted plants sitting on tables or window sills.

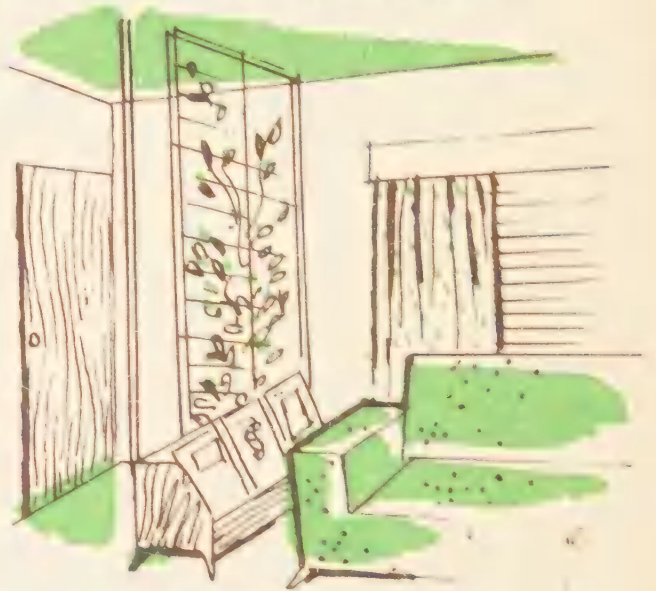
Here are three ideas on use of house plants:



Double French Doors: These can be changed to a single door—with plants added to each side in planter boxes. Tall plants can be used in many other spots to soften structural lines.



Coffee Table Planter: Another clever method to show off both flowering and small green plants is to make a planter box of your coffee table. You may change it frequently if you grow inexpensive plants like orange or grapefruit seedlings plus tiny ferns and scattered small flowering plants.



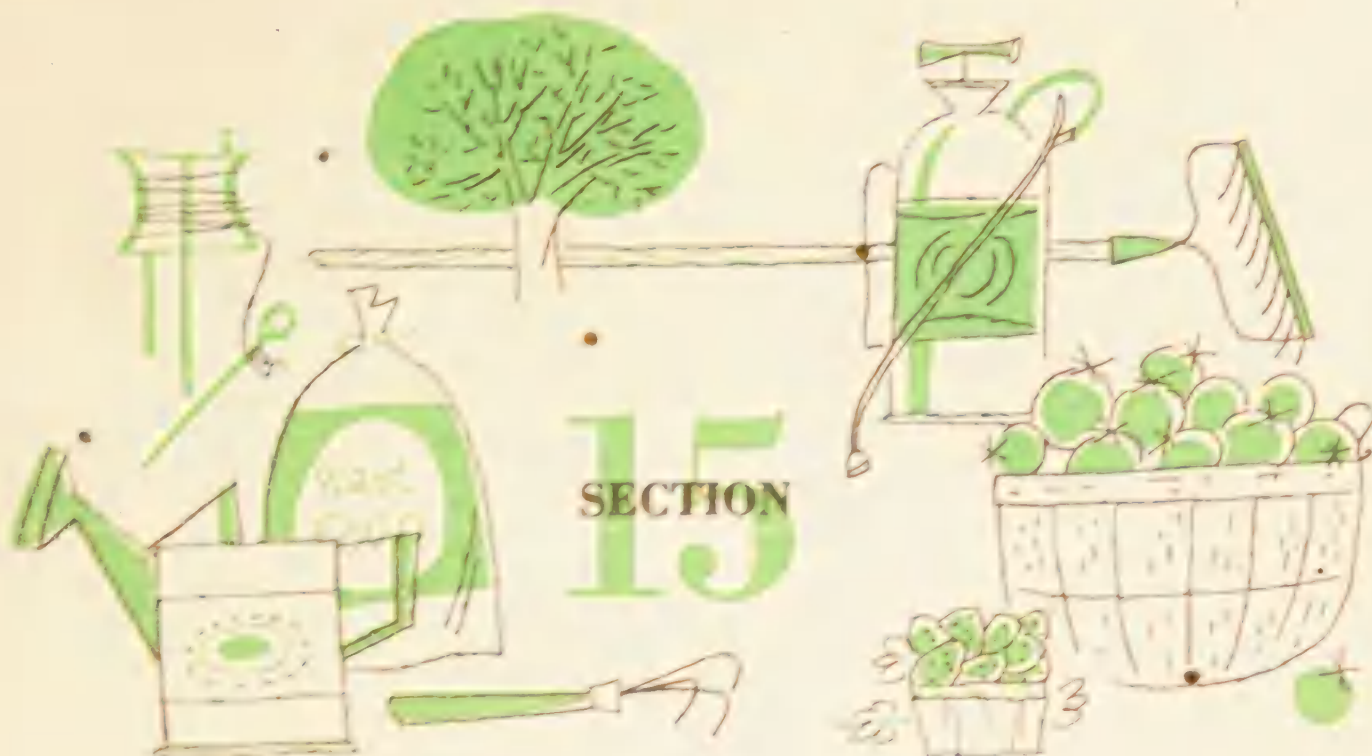
Living Wall: This is very popular with children, who like to measure how fast a plant can grow. The "living wall" is frequently used to set off an entrance hall from the front room, or the laundry area in the kitchen. The planter box can be put on a pedestal or on the floor. Sticks can be stuck in the soil as supports for climbing ivy.

SOME TIPS ON HOUSE-PLANT CARE

Give house plants a bath under the faucet to restore their natural color. Use oilcloth to keep soil from washing out.

A tall house plant can be supported with an extension curtain rod. As plant grows, rod can be extended.

To start house-plant cuttings, make a small box about 6 by 15 in., and 4 in. deep. Have glass sides cut to size, and fasten together with masking tape, cellophane, or adhesive tape. Use sand and a rooting medium in the box.



SECTION

YOUR 1955 GARDEN

YOUR GARDEN can be the most exciting spot on the place—as well as grow \$200 to \$300 worth of dewy fresh goodness you can't buy in stores.

If you have an experimental urge, plant a gooseberry tree, test a new soil conditioner, or graft different fruits on the same branch. Want to show up a neighbor? Bet him you can grow three bushels of tomatoes on a single plant. Or a 60-lb. watermelon.

Like to tinker? You can get midget motors that will mow and hoe and shovel snow in winter. . . . Get over-excited easily? By growing your own vegetables you can avoid the August shock of having a storekeeper charge you 39¢ for 3 runty tomatoes—when you've splattered better ones against the barn as a kid.

Have children? As parents of five we think a garden's as essential as picnics and football. No children? Still, what better hobby than a garden for the increasing leisure time so many of us have!

You can be a chemist, making tissue tests on growing plants . . . a pioneer, trying out that one-tree orchard . . . an entomologist, warring with the insects . . . a botanist, making seedless vegetables with hormones.

"The garden is a wonderful spot;
You plant a little, and reap a lot."

ANSWERS TO YOUR FERTILIZER QUESTIONS

When is the best time to fertilize? A week ahead of planting. Broadcast on top of ground and rake in. Banding fertilizer close to seed will increase yields, but it's more trouble than it's worth for the average gardener.

Should I test my soil first? Unnecessary unless you've had a garden failure. Soil tests from small area growing a great variety of vegetables can be misleading. Best bet is to give your plants a balanced nutrient diet each year with manure or fertilizer.

How much? Three to 5 lb. of 5-10-5 or 6-10-6 per 100 sq. feet. Or, 50 to 100 lb. of manure or compost on same area.



What's tissue testing? You can buy a simple test kit which will tell you in 2 minutes whether your growing crops are getting enough plant food. It's more reliable than a soil test. (And makes you feel like a chemistry wizard as you show the kids how tissues turn pink when there's plenty of nitrogen, blue if there's adequate phosphate.)

SPRAY IT ON

This gadget screwed on to your faucet, or between hoses, will feed liquid (or dissolved) fertilizers to your gardens as you sprinkle. A 36-in. tube placed in bucket of fertilizer solution sucks it into the hose line when the hose is turned on. For every 8 to 12 gal. of water sprinkled, you put on a gallon of your fertilizer solution.

What does 5-10-5 stand for? 5% nitrogen; 10% phosphorus; 5% potash. These are the three main fertilizer elements. High-analysis fertilizer costs more per sack, but less per pound of plant nutrients.

Should I use manure or buy fertilizer? Here's a rule-of-thumb means of measurement: A ton of manure, a 100-lb. bag of fertilizer, and a good cover crop are equal in value. Manure is always good if you can get it, because it adds organic matter plus nutrients. But it pays even then to add 2 or 3 lb. of mixed fertilizer per 100 sq. ft.

Is soil conditioner a fertilizer? No. Conditioners change physical condition of soil but add no nutrients.

What about liquid fertilizers? OK. They give somewhat more rapid response when sprayed on leaves. So if a tissue test shows deficiency, then you can put on fertilizer in a hurry. Otherwise, liquid or dry, fertilizers are pretty much same. It's the plant food content that's important, not the form.

Sugar's Healing

Avoid danger of burning vegetable crops with too-strong nitrogen solution. Simply add sugar to the spray, says Kentucky Experiment Station.



BETTER SEEDS COMING UP

DISCOVERY of seed parents with sterile pollen will make possible hybrid vegetables of all kinds. This promises still bigger and better vegetables for the home garden. And flowers, too.

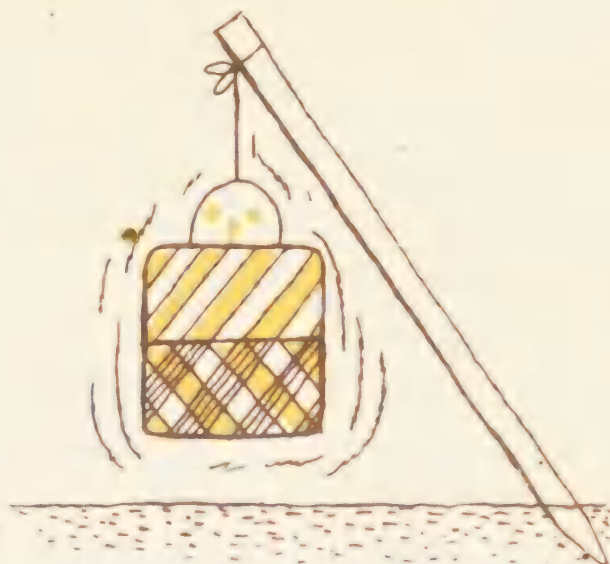
Sweet corn, onions, beets, carrots, and petunia hybrids have already been developed from pollen-sterile plants. Others which could be hybridized are rye, celery, Swiss chard, and many of the flowers, says W. H. Gabelman, Univ. of Wisconsin horticulturist.



A MECHANICAL HOE FOR THE LADY

THIS is the mechanical age—and gardeners now trim hedges, spray gardens, mow lawns, and prune trees with power. The garden tractor has been getting bigger as the men demand "more power." But now the gals have power at *their* fingertips in the form of midget-sized midgets like this. Here's a tool that will do just about everything but look after the baby:

Hoe a garden; cultivate a rock garden; trim lawn edges; cut light brush; saw down trees; become (inside the house) a floor sander, a bench grinder, or a power drill.



MODERN SCARECROW

Birds are getting so sophisticated these days that they don't fall for the old-fashioned scarecrow. So G. C. Oderkirk, U.S. Fish and Wildlife Service, Purdue Univ., has developed a modernized 'crow. Here's how to make it:

Fill burlap bag with straw. Then paint bright contrasting colors of white, yellow, and black on it. Suspend from end of a 10-ft. pole, set into ground at an angle. This re-styled scarecrow will move in the wind and be much more effective than the old timer, predicts D. Oderkirk.

Time marches on!

SOIL IS SEETHING

Your soil is alive with a seething mass of bacteria and other micro-organisms which feed on crop residues and other organic materials, and turn them into forms for growing crops.

Your job as a good gardener is to provide them with sufficient air and organic matter. Here's a Univ. of Wisconsin estimate on the number in a thimbleful of top soil:

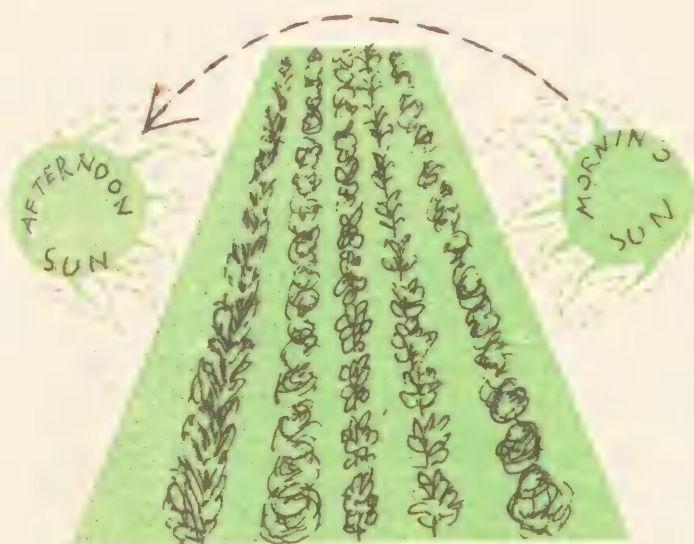
Bacteria	1,000,000,000
Actinomycetes	20,000,000
Fungi	1,000,000
Protozoa	1,000,000
• Algae	100,000
Yeasts	1,000
Watch where you step!	

THIS IS HOW TO:—

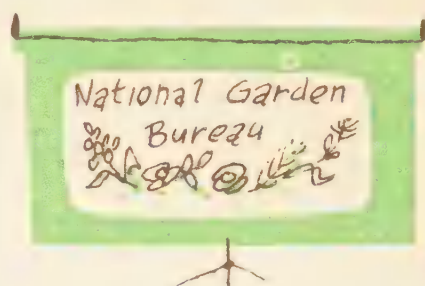
Shell Peas Mechanically: Peas are fun to grow, delicious to eat, but oh, how monotonous to shell! That is, they used to be. In a weak moment I bet Mrs. S. I could shell a batch of peas in 10 minutes. I lost—and now she has on her electric mixer that new gadget which will shell a batch of peas in a few seconds.



Get Rid of Chiggers: You can now lounge on the lawn in peace of mind without worrying about chiggers. Apply 1 lb. of 5% chlordane dust to each 1,000 sq. ft. of lawn.



Lay Out a Garden: Plant rows north and south for maximum sunlight. Tests show much better results this way.



Get Movie for Garden Club: The National Garden Bureau has colored movies which you can get free for your garden club program. Titles include "Garden for Abundance," "Breeding Better Food Crops," "Growing a Flower Garden from Seed," and "Where New Flowers Are Bred." Write National Garden Bureau, 407 S. Dearborn, Chicago, Illinois.

HANDY MEASUREMENTS FOR GARDENER

2 tablespoons = 1 fluid oz.
12 fluid oz. = 1 lb.
16 oz. (dry) = 1 lb.
8 fluid oz. = 1 cup
1 pint (dry) = 1 lb.
1 gal. = 231 cu. in.
1 gal. = 8.34 lb.
 $7\frac{1}{2}$ gal. = 1 cu. ft.
1 cu. ft. = 62.4 lb.
1 bu. = 2,150.4 cu. in. or about 10 gal.

To convert per-acre rates to 100 sq. ft., divide by 435.

1 acre = 208 ft. 8 in. by 208 ft. 8 in.

$\frac{1}{10}$ acre = 66 ft. by 66 ft.

One inch water over 1000 sq. ft. = 625 gal.



Fertilizer—Not Earthworms

"YOU GAIN nothing by buying earthworms to improve your soil," says Milton A. Miller, Univ. of California zoologist. "Soil can be enriched much more quickly, economically, and with less financial risk by addition of manure, commercial fertilizer, or use of cover crops and tillage." He's in favor of earthworms—for fish bait!

HAVE LETTUCE ALL SUMMER

HERE'S the way to have lettuce all summer—and lettuce with bacon (or ham) fryings and vinegar is a favorite at our house. Make small sowings every 15 days, and plant heat-resistant varieties like Salad Bowl.



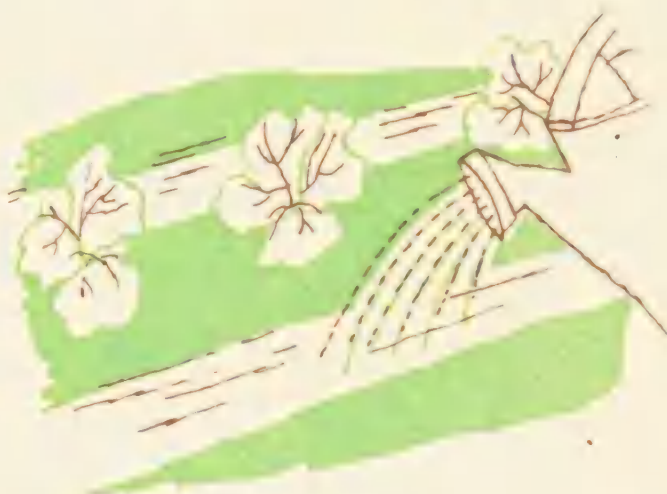
Rake soil real fine. Plant seeds sparsely in shallow row. Cover with earth and firm soil.



When small, thin to one strong seedling every 4 or 5 in.



Shade with taller plants or with lath.



Make shallow furrow 3 in. out from row on either side. Dissolve 3 tablespoonfuls of plant food per gallon of water and pour in shallow rows weekly. Use 1 gal. per 7 to 10 ft. of row. This makes plants grow fast—and the faster garden vegetables grow, the more tender.

A NEW FORMULA FOR SCARING RABBITS

"I GOT a kick out of the rabbit remedies suggested in your 1954 Almanac," writes Victor Ries, widely known floriculturist at Ohio State Univ.

"During the Victory Garden era, our then Governor of Ohio had his garden in the same community cabbage patch that I did. He followed the bottle idea (sticking bottles in garden in hope rabbits would be frightened by their reflections), being very careful to empty them personally before using them. Apparently the

beer and whiskey were the wrong brands or the rabbits did not belong to the W.C.T.U., because they had no effect."

Victor continues:

"We found a much better control with a nightly rifle guard. Until the mosquitoes got bad, one young couple in the midst of courting rather enjoyed the bench we furnished them, the only requirement being to shoot an occasional rabbit during the spooning hours. It worked."



USE ALL-PURPOSE GARDEN DUST

THE gardener has a long list of weapons to use against his insect enemies and plant diseases. But you'll get blisters on your hands changing guns, if you try to shoot them one at a time.

For gardens, it's smarter to use the double-barreled approach—an all-purpose mixture that will kill both insects and plant diseases.

You can buy such shotgun mixtures, but be sure to read the fine print on the label. It should include: (1) DDT or some such material for in-

sect control; (2) fungicides such as zineb, ziram, or ferbam, which are more effective than fixed copper fungicides. Zineb is best.

When? Spray or dust after plants are well established and making growth. Do it every 10 days—oftener if weather is rainy or damp.

Spray or dust? The perfectionists say spray is better. Those who don't like to mess with mixing sprays say dust is OK, but you may have to do it a little oftener.

MAKE YOUR GARDEN WORK TILL CHRISTMAS

IN most parts of the country you can—by planting root crops like parsnips, leeks, and salsify—make your garden work until Christmas.

Parsnips: Relatives of the carrot, parsnips are good as a separate vegetable or when served in a stew. Plant early in May. Use rows 18 in. apart. Thin seedlings to 4 or 5 in.

Salsify: This is known in our section as "vegetable oyster," because that's the way it tastes. Plant early as possible. Thin seedlings to about 3 in. apart. Delicious roots store themselves in the ground long after garden is gone.

Leeks: Cousins to the onion, these are easy to grow from seed. You might want to start them in a cold frame, then transplant into deep rows. Fertilize well. You could make a double row, 6 in. apart. Mulch with leaves before the winter freeze-up to make digging easy.

DON'T WORRY!

WILL all of these potent bug killers build up long-time harmful effects in garden soils and stuff grown there? Researchers say, "No, there's little or no effect on yields, vegetables, or soil bacteria." So don't let this worry disturb your aim when you point the spray gun.

How about residues on vegetables and fruits? Not much danger here either. Only with such leaf crops as lettuce, celery and tomatoes is there need to take more than ordinary care, according to tests run by Florida Experiment Station.

Less than $\frac{1}{2}$ part per million of parathion and DDT was found on sweet corn ears. Four hours after the last spray, only 10 parts per million of parathion remained on cabbage. Seven days after only $\frac{1}{2}$ part per million of parathion remained.

Irish potatoes harvested 100 days after crop was planted in soil treated with chlordane had less than $\frac{1}{2}$ part per million of chemical—and normal washing and peeling removed this.



HOW TO BE FIRST WITH TOMATOES

HERE'S the latest research on the queen of the garden—the tomato.

Earlier and Earlier: If you want to be first in the neighborhood with ripe tomatoes, look over the new first-generation hybrids. Some are listed as low as 58-60 days—10 days earlier than Earliana. Set plants out May 15 and have tomatoes July 15. Plant breeders say some of the new varieties will produce 2-pounders.

Transplanting Tip: Treating tomato, cauliflower, and celery plants with concentrated fertilizer solution at time of setting out gave extra yields, in Michigan State College tests. The solution contained an ounce of 10-52-17 fertilizer per gallon of water. It was used at the rate of ½ pint per plant.

Don't Wait until Disease Shows Up: Start treatment with all-purpose dust or spray about time tomatoes are size of a golf ball—treat about five times,

10 days apart, advises M. D. Linn, Illinois pathologist.

Blossom Hormone: If you want a very early crop, squirt hormone spray on the first yellow blossoms with a small atomizer, or dip flowers in solution. Blossoms normally drop off when temperature drops below 55° F. There are now several new commercial solutions to make the early blossoms stick on and make fruit.

Too Hot: Tomatoes ripen fastest, either on vine or window sill, when the temperature is 55° to 65° F., say USDA researchers. Personally, we have ripened them faster by picking them while still streaked with green, and placing them in the even temperature of a cool basement covered with a light blanket. If your garden is scorching in the sun, a slow drizzle from a sprinkler will also cool the fruit and hurry ripening.

WHAT'S YOUR BEST RECORD?

"Potentially the tomato plant is capable of producing a larger amount of food over a longer period of time than any other vegetable in the home garden," says M. M. Parker, Virginia Truck Experiment Station.

To prove it, he produced 1600 lb. of clean, ripe fruit on 25 plants in his home garden from July to November. That's 64 lb. of tomatoes per plant.

What's your best record? Drop us a card.

THREE WAYS TO USE SOIL CONDITIONERS

SOIL conditioners are a chemical miracle but still a drain on the pocket-book unless used with a miser's caution. Here are some new ideas on how to use them sparingly but profitably

in your garden when your soil is tight and heavy. (Pictures are based on actual tests by USDA researchers at Beltsville on Sassafras and Beltsville silt loam soils.)



Pot Plants: Tomato seedlings in conditioner-treated soils will outgrow plants in untreated soils.



Treat Surface of Row: Treating the top ½ in. of soil of a bean row helped plants break through crust easier.



Work Deep in Row: Carrot roots grew larger and better-shaped in soil kept loose by soil conditioner.



GROW MORE—DO IT WITH MULCH

A MULCH does four things for your garden:

1. Saves you a lot of stoop labor.
2. Keeps your soil at more even temperature.
3. Conserves moisture.
4. Keeps tomatoes, cucumbers, and strawberries cleaner.

What Mulch? Just about anything from corn cobs to old paper will do. The list is as long as your arm: straw, sawdust, leaves, manure, rice hulls, peat moss, alfalfa chaff, peavines, excelsior, corrugated or roofing paper.

Sawdust mulch made blueberry plants grow three times as fast on well-fertilized soil, say Rhode Island horticulturists. Even plants given water that had leached down through fresh sawdust grew twice as fast as those receiving ordinary water.

Dr. V. G. Shutack also reports sawdust mulch produced larger root systems on strawberries, blueberries, and eggplants than either wood chips or straw mulch. His conclusion: sawdust has some growth factor beyond its mulch effect.

Black roofing paper of cheapest grade is excellent mulch in cooler climates, since it absorbs the sun's rays and helps warm up the soil. Prof. E. S. Guthrie, Cornell Univ., who's been

using it on his backyard garden for 20 years, says it cost him \$8 to mulch a 40-by-60-ft. garden, plus some flower beds. "It's the best way to avoid use of a hoe."

Aluminum foil reflects light and tends to keep soil cool during scorching July and August in our Illinois garden. (Light-colored straw or shavings have somewhat same effect.) Foil also helps raise lettuce and other cool-weather plants in hottest garden.

Short Tips: Mulch works best in fever-heat areas, poorest in cool climates where it may keep soil from warming up. For that reason wait until soil warms up before mulching tomatoes, sweet corn, and melons. . . . Spread 3 in. of coarse straw or about 1 in. of sawdust. About 3 to 5 bu. of sawdust will cover 100 sq. ft. . . . Add 1½ to 2 lb. of garden fertilizer (5-10-5) per bushel of sawdust or woody material, say Cornell horticulturists.

Red-Face Dept.: Straw mulch may contain weed seeds or unthreshed grain. Our garden looked like a wheat field last year and brought caustic comment from the 10-year-old member of the Strohm Garden Task Force: "What's the difference between pulling wheat and weeds?"

CHOOSE YOUR WEAPON AGAINST WEEDS



C.H. 1 Keeps Strawberry Beds Free of Weeds



Stoddard Solvent Weeds Carrots



CMU Helps You to Have Weed-free Asparagus Bed

GETTING a backache on the end of a hoe handle may be an old-fashioned virtue, but it's easier to use chemicals to knock out weeds. (Boy under 18 years of age can still use the hoe to work off excess energy.)

Strawberries: Praise be to the concocters for this one! Crag Herbicide No. 1 (C. H. 1 for short) is a cousin to 2,4-D but does not affect leaves and stems of the strawberry plant. When it hits the soil (and only then), soil micro-organisms change it into an active form to kill germinating weed seeds. One application 5 to 6 days after strawberry plants are put in the ground will hold weeds in check for 4 weeks. It will not affect weeds over $\frac{1}{4}$ in. high; so kill or pull larger weeds. Do a summer's weeding with three different applications—2 to 3 lb. per acre.

Carrots: Stoddard Solvent is a whiz at killing hard-to-get-at weeds in carrots or parsnips.

Onions: Potassium cyanate will kill weeds in onions.

Sweet Corn: Put 2,4-D directly on weeds. Or use as pre-emergence spray on the soil itself just before corn seedlings peek through ground. It will keep weeds from coming up for as long as 6 weeks. Use $1\frac{1}{2}$ lb. per acre. Don't get 2,4-D on tender plants.

Lettuce: New chemical called chloro-IPC is fairly dependable in killing most weeds in lettuce, spinach, and beets without harming the crop.

Asparagus: CMU, used as little as 2 lb. per acre per season, has kept asparagus beds free of annual weeds and grasses for 8 weeks or more. Apply 1 to 4 weeks before cutting. Stoddard Solvent has also kept asparagus beds weed-free. Calcium cyanamid keeps down weeds and grasses—then breaks down into calcium and nitrogen, to become fertilizer.



PICK STRAWBERRIES ALL SUMMER LONG

NEW varieties and new growing methods make everbearing strawberries finally live up to the promise of the seed catalogues. At Iowa State College, Superfection plants set out in April yielded a whopping 10,000 qt. per acre—*that same year*. The variety will yield as much as 120 qt. per 100 ft. of row. Red Rich is another variety with a lip-smacking flavor.

Planting Plan: Iowa scientists recommend this as best planting plan: Plant 3 rows of berries 1 ft. apart, with plants 1 ft. apart in the row. Then leave a 2-ft. path between these 3-row beds.

Mulch: Mulch with 1½ to 2 in. of cracked corn cobs, or 1 to 1½ in. of sawdust. Nip first blossoms off. Pull stray weeds. See that plants get 1 in. of water weekly. Leave a can in your garden to catch rain to see how much you need to add.

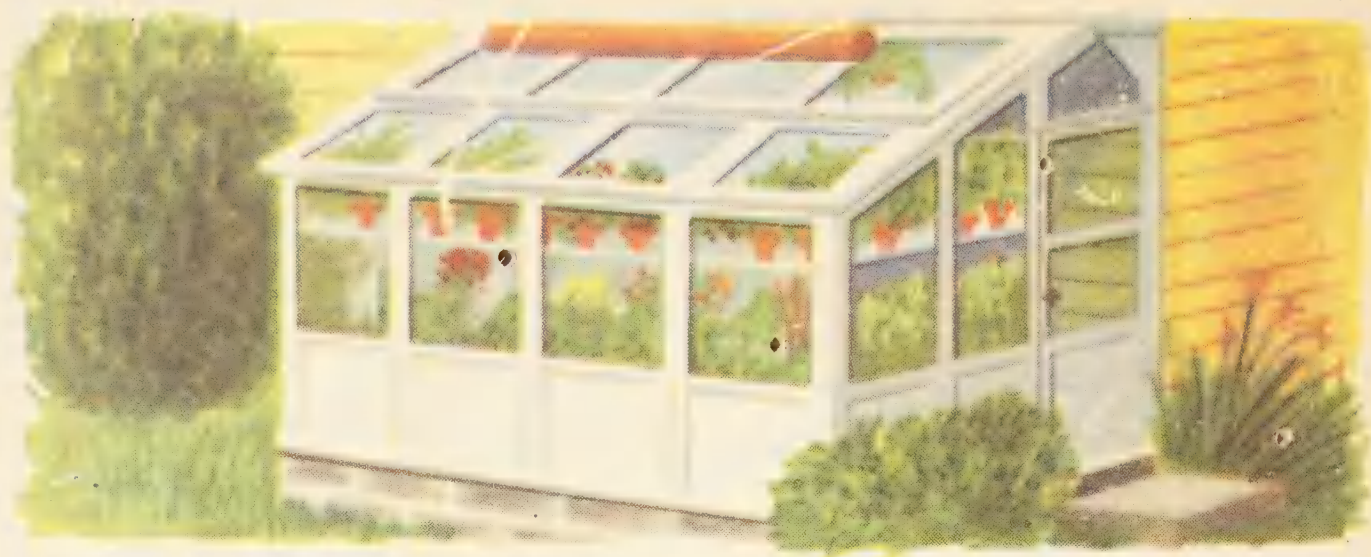
Chopping Off Runners: Some gardeners use a sharp blade on the end of a stick. Others weld a piece of sharp tin or other metal in a circle, put on a handle, and jab it down over the plant, automatically lopping off all runners.

With care these new strawberry varieties will last 4 or 5 years and produce throughout the summer.

Count leaves

THE more leaves a plant has in the fall, the more and bigger berries it will produce the next year, say USDA researchers.

Leaves per plant in the fall:	2	4	6	8	10
Berries per plant next year:	13	34	42	59	65



PRE-FAB GREENHOUSES FOR YOUR YARD

THOSE WITH itching Green Thumbs can get year-round practice with the new lean-to and pre-fab greenhouses. You can get a lean-to for as little as \$150. A 10- by 12-ft. free-standing unit may cost \$300 to \$400.

If you buy or build a greenhouse, here are some things to consider:

1. Heating unit, foundation, and other equipment for the greenhouse will cost as much as pre-fab greenhouse itself.

2. Ventilating a greenhouse is as

important as heating it. Ventilation is needed on both top and sides to get proper temperature adjustment.

3. It's difficult to control air humidity and temperature in too small a greenhouse. It gets too hot on a sunny day, and it cools too rapidly on a cloudy day.

4. Don't permit condensation on roof that might drip on plants.

5. Electric heating units are best because they eliminate the possibility of gas leakage.

HOW TO GET MOST OUT OF HOME FREEZER

TIME WAS when roasting ears or fresh strawberries for Christmas dinner represented the height of luxury. But now they're within reach of everyone with a garden—and a home freezer.

To get the most out of your freezer, W. F. Lomasney, Illinois marketing specialist, offers these suggestions:

1. Plant the varieties of vegetables that freeze well. Freeze only best-quality foods.

2. Get an instruction book on how to prepare food properly for freezing. It's important to blanch all vegetables, and meat should age at least a week at 40° F., before freezing.

3. Package food carefully, with vapor-proof, moisture-proof material. Cellophane is good for vegetables. Polyethylene or pliofilm is best for meats.

4. Quick freezing is best for preserving the color texture and quality of your garden products.

5. Keep temperature of freezer at zero.

6. Don't keep too long. Plan turnover of freezer stock at least three times a year.

How Long Will Food Keep?

How LONG will foods keep in freezer? Here's a guide: prepared cooked foods, 3 months; fried foods, 1 month; ground beef, pork, sausages, 6 months; most vegetables and fish, not more than year; unground beef, poultry, and most fruits, 1 to 1½ years.

TEST-TUBE MAGIC WORKS FOR YOU

TIP your hat to the men who work with test tubes. Here are some of the things that they've been up to lately.

- You can now stop shriveling and sprouting in potatoes, carrots, turnips, and beets with new chemicals you dust or spray on. They're available under tell-all trade names: Sprout Inhibitor, Barsprout, Potato Fix and Stop Sprout. . . .

- Peaches and strawberries will keep 2 days longer at room temperatures when treated with these tongue-twisters: trichlorethylene and tetrachlorethylene. Those names are enough to scare bacteria to death. . . .

- Stick-on sprays will hold apples on tree until picker gets there. Also they'll

delay harvest until nights are cool—which makes apples redder.

- Spinach lovers will like this: Streptomycin, a wonder drug in the world of humans, will double life of spinach after it's harvested.

- Sap caught in plastic bags makes better maple sirup than sap taken in old oaken buckets. Seems ultraviolet rays go through plastic to sterilize the sap.

- We have many spectacular chemical concoctions to make plants bigger, better, different, smaller, earlier, and later. But here's one to return us to sanity. Univ. of Wisconsin horticulturists have developed a potent new plant hormone which, they modestly claim will help plants grow normally.

A NEW WAY TO START PLANTS

ORDINARY plastic freezer bags plus some sphagnum moss give the home gardener a new tool and an easy way to start seeds or slips. You can even make the slip develop roots while still on tree or bush (see below).



1. Girdle branch with knife, scraping wood cleanly.



2. Form ball of wet sphagnum moss or other rooting material around cut.



3. Wrap with plastic and tie securely.



4. After 3 to 5 weeks, take off bag and transplant.



WICK WATERING

WATER your house plants from the bottom with wicks. You can either buy spun-glass wicks or make them out of burlap. They help you avoid the evils of too much and too little watering.

TO MAKE A COMPOST PILE

WHY NOT turn the nuisance of lawn clippings, leaves, weedy trash, and even vegetable garbage into valuable fertilizer for your garden? You can do it with a compost pile.

Pick a spot in a corner of that garden in shade if possible. The pile can be built on top of the ground or in a pit about 4 by 6 ft. and 18 in. deep. Make walls of plank, cement block, or woven wire. Pack leaves or other refuse in layers of 6 or 8 in. Sprinkle with water if you're using dry leaves. Green clippings don't need much moisture.

Add about 3 lb. of ammonium sulfate (or 2 lb. of ammonium nitrate) and 2 lb. of superphosphate for each 100 lb. of dry leaves. Spread an inch or two of garden soil on each layer.

Add successive layers until pile is about 4 ft. deep. Keep sides straight and make pile slope toward middle for quick rotting. Pile should be kept continuously moist, but not waterlogged.

What can go into a compost heap? Sweepings from vacuum cleaner, scraps of woolen, cotton, or silk cloth, non-grease garbage, bones, leaves, weeds, and screened ashes.

NEW POPCORN

ILLINOIS Hull-less popcorn will pop up to 40 times normal size. Fifteen years ago a good popping corn increased itself 22 times. By careful selection, Prof. B. L. Weaver, Illinois horticulturist, has developed corn that pops as much as 44 times in volume.

"VACATION WRAP"

THE DAY when vacationers had to ask neighbors to water their house plants is gone. You can do the job now with "vacation wrap," a plastic which you wrap around your flower pots and up around the stalk. The process, discovered by Dale Sweet, Michigan State horticulturist, will keep a plant healthy at room temperature for "two or three weeks." The plastic keeps potted plants from losing moisture through the porous pots and top soil.

GARDENING TIPS

PLANT rows north and south for maximum sunlight. . . . Most seed packets will plant 25 ft. of row. . . . Paper garden first—don't bite off more than you (or your wife) can hoe. . . . Order garden seeds before Feb. 15—to be sure of getting best seeds. . . . And saving seeds from garden is questionable practice. . . . Plants receiving morning sun and afternoon shade yielded most, biggest, and best tomatoes in Illinois test.

KILLS AND FERTILIZES

HERE'S a new chemical for home gardeners that's almost like eating your cake and having it too. Calcium cyanamide first kills weed seeds when applied to the soil. Then in about 3 weeks it changes into a highly effective fertilizer, furnishing lime to sweeten the soil, and nitrogen to feed the plants.

DWARF FRUIT ORCHARD FITS 30- BY 40-FT. PLOT

Now YOU can have fruit trees in your garden, or as ornamentals along shrub borders. The new dwarf fruit trees are the answer to a gardener's prayer:

They take little room; you can space them 8 ft. apart. They grow very low; a mature peach is only 7 ft. high. And most dazzling prospect of all: they produce regular-sized fruit. You can grow dwarf apple, pear, peach, cherry, and plum trees—and three or four varieties of the apple on the same apple tree.

A plot only 30 by 40 ft. is big enough to grow an orchard of miniature trees to provide fruit for the family—with enough left over for jams and jellies, says Dr. Carl Sax, director, Arnold Arboretum, Jamaica Plain, Mass.



Dwarf apple trees can have different varieties.

For the small orchard, request Malling IX root stock, which will yield mature trees of 6 or 7 ft. Dr. Sax suggests pinching off blossoms from year-old trees. He also suggests this pruning procedure to make a dwarf yield well for 20 to 25 years—instead of 8 to 10 years:

Cut back every other branch on *one* side of the tree to one or two buds each year. The following year, alternate by cutting back branches on the opposite side of the tree.

Several commercial orchardists who have turned to planted dwarfs say they give more production per acre, are more easily picked and cared for, and bear in 2 or 3 years—instead of 8 to 12.

NEW PRUNING SYSTEM

A NEW pruning system—devised to produce bigger apples—will also literally take years off the age of an old apple tree, says R. H. Roberts, Wisconsin horticulturist.

Instead of cutting out *all* old weak wood around the lower part of the tree simply cut this growth *in half*, during the dormant season. Each old branch then sends out strong new growth and bears large fruit.



Dwarf peach trees will bear when 2 to 3 years old.

You can pick peaches in a year if you start a year-old tree. Dwarf McIntosh will bear when 3 years old. Dwarf cherry trees are small enough to be covered with fine cloth—to keep the birds from beating you to the cherries.



Rosemary



Sage



Mint



Thyme

EXPERIMENTAL PLOT

HERE'S an idea that will get you out of a garden rut. Set aside a corner of your garden for experiments.

For example, you might try out a soil conditioner and see for yourself what it will do (page 194). Or the hormone that's supposed to make tomato blossoms stick on (page 193). Or the air-wrap method of propagating plants (page 199).

Here's what we're going to try out:

Skim Milk to Up Yield: "Put a little skim milk on your garden!" That may be the advice of the future. At Montana Experiment Station, $\frac{1}{4}$ oz. of dried skim milk mixed in each cubic foot of soil stimulated root growth of many flower and vegetable seedlings. Experimental work was done especially with tomatoes and pansies. It caused pansies to bloom earlier and oftener—and give bigger blooms. It made tomatoes ripen sooner and pro-

duce larger yields. Work has also shown up well with onions, potatoes, and other garden crops.

Grow Herbs: A spot 10 by 10 ft. will produce all the herbs you need to spice up meals.

Start with parsley, mint, thyme, lovage, tarragon, and sage say horticulturists.

The following are *annuals*: anise, basil, borage, coriander, dill, fennel, summer savory, and sweet marjoram. *Perennials* include chives, mint, sage, thyme.

Chives, parsley, thyme, sweet marjoram, and sage do well in pots for winter use.

Gooseberry Tree: "Trees" have slender trunks $3\frac{1}{2}$ to 4 ft. tall, and berries will measure up to 3 in. around. Stern's Nurseries, Geneva, N.Y., imported them from England.

MAN CREATES NEW PLANTS

WITH a single drop of a deadly drug, man can now outdo nature and create new plants—and improve old ones.

The drug colchicine, extracted from fall crocus, causes in plants “sports” or mutations that occur only once in a billion times in nature.

Many of these changes may be un-

desirable—leaves may be smaller or thicker, fruits may be smaller. But there’s always the exception which brightens the plant breeder’s eye.

Haig Damen, USDA Plant Industry Station, shows what this means to gardeners in the following set of pictures:



1. A drop of colchicine is placed on grape bud.



2. Abnormal leaves show cells of shoots have been changed.



3. Branches from abnormal leaves develop bigger flower clusters.



4. More and bigger grapes grow in the cluster which resulted from shock treatment.

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THE EDITOR'S PAGE

I'VE HAD a flock of questions from folks who read our '54 ALMANAC. Here are answers to questions most frequently asked:

"Is this '55 ALMANAC different from last year's?" Idea is the same, but all stories and drawings are new. And our '56 ALMANAC will be a completely new book, too.

"Where do you get all these stories?" From USDA and state ag experiment stations, which we visit frequently. . . . From industrial researchers, who are doing wonders. . . . From top farmers, the most skilled in the world. . . . And I owe special thanks to *Country Gentleman* (whose name is being changed to *Better Farming*), from whose great resources I've drawn liberally.

"Do you really think the future of agriculture is as bright as you make it sound?" I sure do. There's more opportunity to make money in farming than in any other occupation I know of. The tools, the know-how, are available. But it takes two more things to be successful: some experience—and a real ambition to be the best.

"You've made farming sound too easy." Farming is NOT easy. And it takes more than mere hard work. A successful farmer is a combination laborer-vet-diplomat-agronomist-blacksmith-banker.

I deeply appreciate the many letters and comments about last year's ALMANAC. I'd consider it a big favor if you'd drop me a note about this '55 edition—what you like, and what you don't like. And what you'd like to see in our 1956 FORD ALMANAC.

My sincere thanks to the many folks who helped bring this ALMANAC to life. Take it from me—it was a real team effort.

JOHN STROHM
Woodstock, Ill.

Labor:
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